THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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Smithsonian Institute Washington D C

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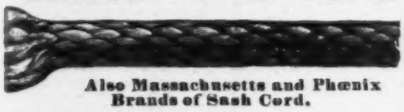

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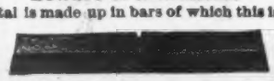

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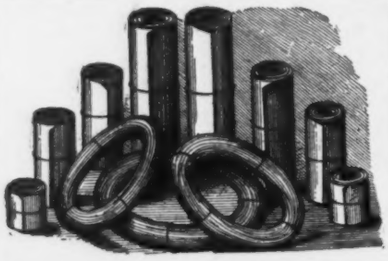

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THE IRON AGE.

THURSDAY, AUGUST 10, 1899.

Rebuilding a Machine Shop.

Taking down a machine shop, erecting an entire new structure in its place, and in the meantime operating the plant day and night, is a problem in construction which is now being solved by Ulrich Eberhardt, senior member of the firm of Gould & Eberhardt, Newark, N. J. The old plant, which has adorned the square bounded by New Jersey Railroad avenue, Green, Bruen and Lafayette streets for over two score of years, is steadily giving place to a new modern steel frame structure. Naturally a building which has been in constant use for the construction of machinery for half a century has served its purpose and a new building to take its place is about due. This is the view which was taken by Mr. Eberhardt. The old plant was built on made ground, and the constantly increasing heavy traffic on the Pennsylvania Railroad, which passes the shop, was commencing to tell on the old structure. At the passing of each of the heavy freight trains the old structure quivered. This could not be tolerated, owing to the extreme accuracy of workmanship required in the shops. Consequently a new building was an absolute necessity. Orders were on hand to keep the plant in operation 24 hours each day for months to come, so that a removal was out of the question. A new shop had to be erected and the operation of the old plant could not be interrupted. As a result of these circumstances the following plan was decided upon:

The main building was sectioned off into four parts, the work to go through in four stages. Directly inside of the outer walls of the first section false work was erected to support the floors. With pine boards a wall was built directly inside of the old brick wall. The windows were then taken back from the old wall to the temporary pine wall. When this work was completed and all of the strain placed on the false work the outer brick wall was taken down. Concrete foundations were laid and a steel skeleton frame erected outside of the false work. On the first two floors additional beams were slipped in between each of the old beams, and all were anchored in the outer steel channel or cradle.

The upper two floors were raised slightly and the actual roof made to serve only as a ceiling for the top story. Above this a false roof was built, leaving an air space of 3 feet. This was done to do away with the heat of the top story, which will be used for erecting large machines. The heaviest work will, of course, be done on the ground floor. The upper two floors are entirely new. The large window space of the new building affords excellent lighting. This is aided by painting the entire interior of the building white.

The first engraving shows the first section of the building almost completed. The other three sections will undergo the same changes. The second section, as shown in the engraving, has the old wall removed and steel frame in place. Engraving Fig. 2 shows the frame work of the upper new floors.

REBUILDING A MACHINE SHOP.

Failure of Natural Gas in Indiana.

The natural gas investigating committee, composed of representatives of Indianapolis and belt cities, commercial clubs and boards of trade, who have made a complete tour of the field, testing and blowing off wells, taking the pressure and inspecting lines, pumping stations and the wells themselves, have completed their work and made a report. The committee state that the pressure is failing materially and that it is better that the true state of affairs be known. The highest pressure they found was 198 pounds, on a well in the northwest corner of Madison County. The first-class territory is limited to Madison, Delaware and Grant counties. They find that the Ohio and Chicago companies are building their lines into this territory, and all Indiana companies are headed that way, and they anticipate that the reservoir will not long stand the drain which will be centered within a few miles. They find pumping stations a ne-

cessity for points more than 40 miles distant, and anticipate that many Indiana towns and the Ohio towns and cities and also Chicago will have natural gas for only a limited time. In the three counties named there should be gas for manufacturing for some time yet, and for domestic uses for a longer time. The companies supplying Indianapolis have served notice that they cannot furnish more gas this year than last, when the pressure was insufficient.

To Enlarge the Cramp Shipyards.

At the recent annual meeting of the Wm. Cramp & Sons Ship and Engine Building Company, held in Philadelphia, it was voted to increase the size of the company's plant. On this point H. S. Harfley, a director in the company, is quoted in the Philadelphia *Times* as follows:

We have hardly determined to just what extent improvements will be made. We have had the new property for only a few weeks, notwithstanding the newspaper stories which credited us with having secured it long ago, so we will not know t..e exact extent of our new operations until the survey now in progress is completed.

Austrian Advances in Fifty Years.

In the splendid work upon Austria which has been issued in honor of the jubilee of Emperor Francis Joseph's accession to the throne, says the Vienna correspondent of the London *Economist*, Dr. Alexander Peez, the distinguished Austrian national economist, has published an interesting essay on the development of industry in Austria in the fifty years from 1848 to 1898. He first of all calls attention to the great increase of mechanical power during that period and reminds his readers that in 1848 there were—locomotives excepted—from 400 to 500 steam engines in Austria representing about 1500 horse-power. In 1898 it is believed that 3,000,000 horse-power are in operation. This, Dr. Peez says, corresponds to the working power of a population of 44,000,000. The Austrian population, which numbers 25,000,000, has therefore 44,000,000 mechanical slaves of iron to assist it in doing the necessary work before it, and among the 44,000,000 there are no aged, no women or children or invalids, no idlers. Dr. Peez shows the disadvantages of Austria when compared with other countries. The number of working days in the year is in Austria 295, which is less than in Italy, Belgium, France, Switzerland, Bavaria, Saxony, Denmark, Norway, Prussia (305), Holland (312), and Hungary (312). The normal duration of work in Austria is 11 hours for lighter and 10 hours for harder work every day. In some few branches of business it is nine and eight hours. In the machine manufactories the 10-hour day was introduced in 1870, and the weekly earnings are from 10 to 15 florins—from $3.35 to $5.02. Foremen earn from $500 to $650 per year.

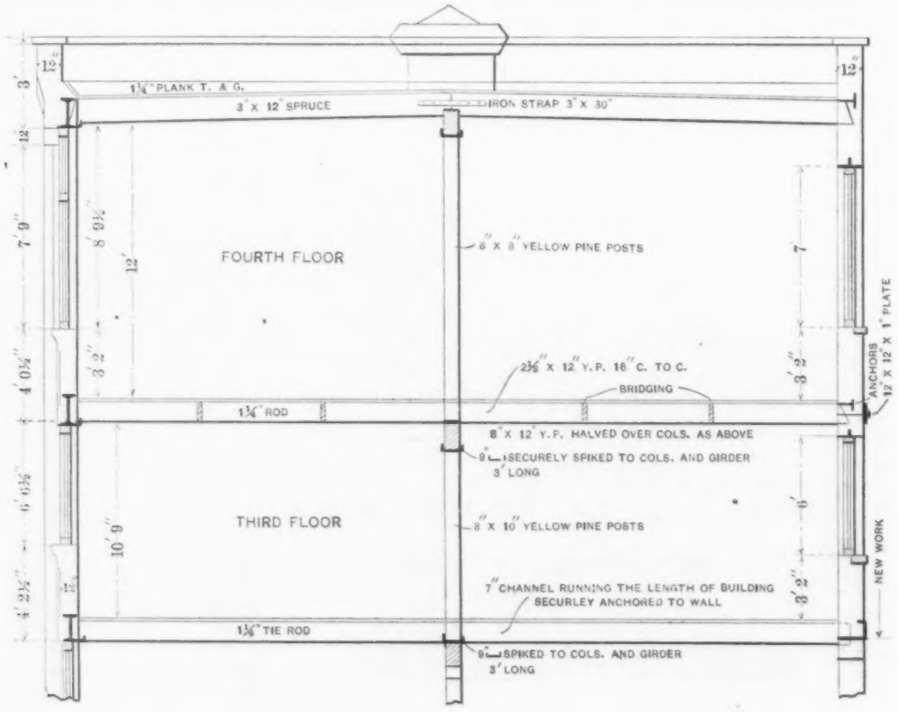

1¼" PLANK T. & G.
3" X 12" SPRUCE
IRON STRAP 3" X 30"
FOURTH FLOOR
8" X 8" YELLOW PINE POSTS
2½" X 12" Y.P. 16" C. TO C.
BRIDGING
1¼" ROD
8" X 12" Y.P. HALVED OVER COLS. AS ABOVE
9" SECURELY SPIKED TO COLS. AND GIRDER 3' LONG
THIRD FLOOR
8" X 10" YELLOW PINE POSTS
7" CHANNEL RUNNING THE LENGTH OF BUILDING SECURLEY ANCHORED TO WALL
1¼" TIE ROD
9" SPIKED TO COLS. AND GIRDER 3' LONG
ANCHORS 12 X 12 X 1" PLATE
NEW WORK

Fig. 2.—Section of Upper Floors.

REBUILDING A MACHINE SHOP.

The land approximates eight or ten acres, and it will enable us to put in at once another 700-foot slip. Our new dry dock will be at least 750 feet in length, and if it does not encroach on the street may be fully 800 feet, large enough to take in two vessels. For one thing we shall erect on this property a new machine shop, which will be modern in every respect. The equipment of machine tools in a general way will be similar to that in the present machine shop, but the tools will, in most cases, be larger. Erecting shops will also be built in the territory just annexed.

The most important work under way at the present time is the installation of three electric traveling cantilever cranes, by the Brown Hoisting & Conveying Machine Company of Cleveland. We have also within the past few weeks put in an air plant and a full equipment of pneumatic riveting machines for use on hulls. We have about 5000 men at work at present, and a little later this force will be materially increased. Our great difficulty is in securing material.

Just to show how present conditions in the market have affected us I may say that we had expected to launch one of the Russian war vessels which we have on the stocks before this, but such delays have been experienced that she will not go into the water before some time in September.

A Swedish civil engineer, Knute C. Wideen, now resident in Chicago, has invented a glass reflector for focusing the sun's rays, which is claimed to have generated a greater degree of heat than ever before produced. He has constructed one with an area of 84 square feet, which instantaneously fuses refractory metals. By means of ingenious mechanism he changes the reflector from a plane to a concave surface. With a group of such reflectors, which he says can be constructed at $500 each, he claims to be able to produce results surpassing those accomplished by the electric furnace.

The manager of a Chicago concern has been arrested, charged with using the Stars and Stripes for advertising purposes. The flag law promises to be thoroughly tested, as the case will go to the higher courts.

Amending the Bankruptcy Act.

WASHINGTON, August 8, 1899.—Growing out of the convention of the American Commercial Law League at Asbury Park, the proceedings of which in relation to bankruptcy were reported in *The Iron Age* last week, a strong movement has been set on foot having for its object the passage by Congress of certain important amendments, very few in number, and at all hazards the retention of the law on the statute books. The practically unanimous vote by which a resolution was adopted on the last day of the convention, providing that "while said act should be amended in some respects amendments should be made only after the most careful consideration and deliberation, and whether or not the same is amended, the act should be kept in force," is a significant indication of the views of the leading commercial lawyers of the country, whose selfish interests might have caused them to look with disfavor upon a statute which very materially reduces their fees in insolvency cases.

The amendments, to secure which a powerful organization is now being perfected in practically all the States, relate almost entirely to the subject of discharges, and are intended to meet the criticism of the law that it has permitted unprincipled men to defraud their creditors and to enter again into business with a new lease of life. Complaint has frequently been made that the law permitted men with no commercial conscience to repudiate honest obligations, and after exceeding the limit of their credit to go into bankruptcy rather than to liquidate in any other manner. The first of the amendments referred to will provide that any person having taken advantage of the bankruptcy law and who desires to do so a second time must produce assets equal to at least 25 per cent. of his liabilities in order to secure a discharge. On this point it is argued that when a person has demonstrated his inefficiency as a business man, and as a result has once taken advantage of the bankruptcy law, he ceases to be worthy of the same consideration as one who has not and should not be treated as leniently by the law. It is contended that the loss represented in repeated failures, due to proven incapacity or dishonesty, is not at all sustained by the creditors; a part of it is suffered by the reputable debtors who pay in full and who are subject to the severe competition of slaughter values and bankrupt prices to the extent of the business conducted by the commercially incapable and morally indifferent who have been permitted to run their course to certain disaster by the grace of easy compromises and undue liberality in granting subsequent credit. If a second discharge cannot be secured, except upon the production of a considerable proportion of assets, it is felt that a very serious fault in the present law will be cured.

Probably the most important amendment of those which it has been decided to urge is a modification of section 17. This provision now reads as follows:

"A discharge in bankruptcy shall release a bankrupt from all of his provable debts, except such as * * * (2) are judgments in actions for frauds * * * (4) were created by his fraud, embezzlement, misappropriation or defalcation while acting as an officer or in any fiduciary capacity."

It will be noted that this provision limits the refusal of a discharge on account of fraud to cases in which the petitioner has committed an offense while acting as an officer or in any fiduciary capacity. The courts have, therefore, held that the law gave no right to refuse a discharge upon the mere proof of fraud unless the judgment in an action for the fraud specified had previously been obtained. The practical effect of the law and the decisions thereunder has been to permit frauds to be committed by persons who, when actions were begun which would probably have resulted in judgments, have filed voluntary petitions in bankruptcy. By securing a few stays in the prosecution for fraud the proceedings may easily be delayed until the discharge in bankruptcy has been granted, after which the judgment is valueless.

It is now proposed to amend section 17 by inserting the word "also" after the word "defalcation," near the end of the paragraph. The result of this amendment will be to empower the courts to refuse discharges for debts, created "by his fraud, embezzlement, misappropriation or defalcation" without regard to whether the petitioner was an officer or served in a fiduciary capacity. It is believed that this amendment will be very effective, and will meet such cases as have been reported to the Department of Justice by certain referees, one of whom, in a letter to the Attorney-General, says:

"While the law on the whole has operated with great benefit to the business community, I have been obliged to grant discharges in a few cases where I felt that I really ought to commit the petitioners to jail."

The Attorney-General in his forthcoming annual report will recommend the adoption of the amendment above described, and one or two other slight modifications. Mr. Brandenburg, who has charge of bankruptcy matters in the Department of Justice, will draft this feature of the Attorney-General's report, and is confident that the modifications suggested will be adequate to remove the principal grounds for criticism. Mr. Brandenburg emphasizes the importance of proceeding with great caution and deliberation in amending the law, which he is confident will present a very different aspect in another six months when the arrears of old State insolvency cases have been cleared up. On this point he said to the correspondent of *The Iron Age:*

"It is to be hoped that the friends of the Federal Bankruptcy law will not permit themselves to be misled by the fact that the papers daily herald the discharge of some unfortunate individual without a cent of assets. This must of necessity be expected, and is a feature which is inseparable from the initial stage of the enforcement of any Federal Bankruptcy law. These petitions which have found their way to the courts in the several districts have been erroneously put down as the result of the enactment of an ill digested law to enable insolvent men to get rid of their debts. In the first place, it must be remembered that this law was made necessary by, and took effect after, three or four years of unprecedented industrial depression, and will be the means of a readjustment of commercial affairs upon a basis of prosperity and permanency that must redound to the good of the people.

"The numerous petitions that have been filed can in no sense be considered as recent failures, but are to a very large extent the result of business embarrassments of years long past, many of them dating as far back as 1885, 1890 and 1895. But few cases are those of recent failures, which speaks well for the condition of prosperity now prevailing. It is, perhaps, needless for me to state that the purpose of the present applications in voluntary bankruptcy is to obtain a discharge from past obligations that will be co-extensive with the limits of the United States. When a debtor has once taken advantage of a State insolvency law his credit is necessarily impaired, and any purchases he may make beyond the confines of his State are naturally upon a cash basis, with the result that the title of such property immediately vests in him, and the goods become liable to seizure, as such State laws have no extra territorial force.

"Most naturally there is considerable complaint on the part of the merchants who have been flooded with notices of bankruptcy meetings, and who are seeing canceled on their books old accounts which have for years been worthless and yet which are still carried to a certain extent as assets. As a matter of fact 99 per cent. of these accounts were absolutely valueless, and have been for years, and never would be satisfied. The creditors accordingly lose nothing by the discharge, but ultimately may profit by it, for if the bankrupt be permitted to start life anew the chances are that, if honest, upon resuming business, he will deal with the creditor and in that way the latter may in some way be recouped for his losses. Furthermore, all men are not dishonest by nature, and many a debt which is discharged in the sight of the law will still be held by the honest debtor as a claim morally due, and which at some prosperous day will be satisfied. Because there are frauds stalking about our land garbed in the clothing of honest merchants unfortunate business men should not as a class be condemned. I am one of those who believe that the large percentage of our merchants can be trusted, and should not be forever kept under a ban because of some adversity over which they perhaps had no control."

It is probable that within a short time a draft will be made of the proposed amendments, and that petitions to Congress for their enactment will be widely circulated throughout the country. W. L. C.

The Connellsville *Courier* announces that the Federal Steel Company, who recently purchased from H. C. Frick the Revere tract, just south of Uniontown, have sold 1132 acres of it to W. J. Rainey for a trifle less than $1000 per acre, making a total consideration of over $1,000,000, and for the same sum have purchased about 2000 acres of the Du Puy coal in Nicholson, German and Menallen townships. The Cochran interests have bought 1500 acres of fine coal just beyond their Washington plant, and have organized the Cochran Coal & Coke Company, capital $360,000, to develop it. The Bessemer Coke Company people have also organized a new $100,000 concern, and will build a new coke plant in the north end of the Connellsville region.

The Indiana Natural Gas Company, who have been securing leases in the gas belt, have declared their purpose of piping natural gas to Chicago. They are preparing for the work on an elaborate scale, putting in 28 large boilers, which will pump gas through three 10-inch mains direct to Chicago, a distance of 167 miles from the fields.

The Manipulation in Pig Tin.

Operations in the tin market during the year 1899 can be compared only with the movements of the famous French syndicate which extended over the latter portion of 1887 and the first four months of 1888. The history of the failure of the operations of the French syndicate is too well known to the trade. It will be recalled that the manipulators entered the market as purchasers of tin just prior to the last quarter of the year 1887. They bought heavily from day to day, advancing prices on themselves until they had advanced the London quotations from slightly above £100 to £170, which price was reached in January, 1888.

The first wide deviation from the regular quotations took place in October, 1887, when the quotations jumped from £104 15s. to £120. The price reached in January, 1888, was the top notch, and the next month saw a decline of £4. During the month of March there was no change, and the purchases of the manipulators were still heavy. It was at this juncture that they were forced to realize that they had overloaded themselves, and early in April, 1888, came the crash. Down went the market, and by the end of the month of April quotations had tumbled £60. A further decline of £20 5s. brought the price down to £85 15s. at the end of May. By the close of the following month the market reached its lowest point, £75 2s. 6d., and the failure of the famous French syndicate was complete. During all these operations consumption naturally fell off somewhat and the principal producers—Straits Settlements—worked day and night, increasing their shipments so enormously that after the crash came those shipments fell off to such an extent that in the month of June, 1888, only 225 tons were shipped. It was many months before the havoc wrought upon the business by this illegitimate movement could be repaired, and business was not placed in its regular channels until the early portion of the next year.

The movement which is now harassing the tin market bears without doubt some similarity. During the year of 1898, although they had shown a natural advancing tendency, prices were moderate, until a large movement in London set in. This was stimulated at first through the monthly decrease in the visible supply. This decrease resulted from smaller shipments from the Straits and an increased consumption. It is said that a great deal of this latest movement in tin in London was due at the start to the fact that speculation in copper had fallen off.

That the wild rise in the price of pig tin is due to manipulation is clearly evident. The year 1899 opened in London with £87 5s. for spot, and by the end of January prices had reached £111 7s. 6d. There was a slight reaction during the following month, and the London cable came down to £107 at the end of February. Again the speculators forced the quotations upward, and at the end of May the London market closed at £117 18s. 9d. In the latter portion of last June the bull speculation in London was strengthened by operators from this side, who are said to be closely connected with the largest consumers of tin in this country. As a result, the market was, without reaction, driven up at the close of last week to £145 15s. Report has it that a large number of small speculators had followed suit, and when the statistics were issued on August 1 showing a small increase and further indicating that high prices affect consumption as well as production, some people thought well to take profits and get out. The London market commenced to decline, and within a few days dropped to the extent of £8. On Friday last the London quotation was down to £137 15s., and prices in New York declined to 30½ cents, with buyers holding off.

Considering that on January 1 the visible supply was 20,131 tons, and 19,001 tons on August 1, a decrease of but 1130 tons, an advance in prices in London from £87 5s. to £145 15s. seems unwarranted.

Statistics show that during the first half of 1899 the visible supply decreased only 227 tons per month, and during the month of August it has increased already 223 tons. This indicates that there is tin enough coming in the way of new supplies to keep up the present visible supply, and it may, with prices above £100, even bring so much new tin forward that the visible supply at the end of the year may show an increase instead of a decrease.

It appears that in times when business is good and competition is going on at an increased rate, prices are stimulated through the entrance of speculators. This is just what has happened in the tin business this year, but it must not be forgotten that in the long run only supply and demand can regulate the market. A small surplus sometimes dictates the prices of an entire production. And then, as has been said before, prices regulate both consumption and production.

The following statistics give the visible supplies, shipments from the Straits, and quotations by month for the period covered by the operations of the French syndicate and the present movement:

	Visible supply at the first of each month.	Shipments from Straits during month.	Quotations at end of month. New York.	London. £.	s	d.
1887.						
January	11,808	1,250	22.65	101	15	0
February	11,696	1,350	22.50	101	10	0
March	11,534	2,300	22.50	102	0	0
April	11,749	1,600	22 60	102	15	0
May	11,248	1,300	23.00	103	17	6
June	10,889	2,050	23.30	102	10	0
July	10,871	1,050	23.50	105	2	6
August	10,528	2,575	23.10	102	15	0
September	11,573	1,625	23.25	104	15	0
October	11,907	2,725	28 50	120	0	0
November	12,966	2,400	34.50	165	10	0
December	14,053	2,630	36.65	167	0	0
1888.						
January	18,094	3,875	36.90	170	0	0
February	20,424	2,625	36.25	166	0	0
March	22,499	1,750	36.00	166	0	0
April	23,403	1,500	24 00	106	0	0
May	23,516	650	19.50	85	15	0
June	20,403	225	17 00	75	2	6
July	16,092	875	20.10	89	7	6
August	13,966	2,225	22 00	97	12	6
September	12,140	2,050	23.70	103	17	6
October	11,451	2,650	23.00	102	0	0
November	11,913	1,650	22.15	101	5	0
December	12,478	2,470	22.15	100	5	0
1898.						
January	29,855	4,650	13 85	63	2	6
February	31,137	2,950	14.20	64	16	3
March	28,800	4,450	14.35	65	3	9
April	28,058	3,100	14 65	65	12	6
May	26,534	3,070	14 87½	67	11	3
June	24,884	3,450	15 40	70	11	3
July	23,515	4,275	15 62½	71	8	9
August	24,739	3,500	15.75	72	2	6
September	24,012	3,600	16.17½	74	3	9
October	24,067	4,275	18.37½	83	11	3
November	22,913	3,600	18 45	83	10	0
December	21,703	2,850	19.00	86	1	3
1899.						
January	20,131	3,550	24.62½	111	7	6
February	20,131	4,600	24.00	107	0	0
March	20,630	3,700	24 12½	109	12	6
April	21,037	3,150	25.75	118	8	9
May	20,129	3,700	25.70	117	18	9
June	20,485	3,400	26.62½	120	15	0
July	18,768	4,055	33 00	145	15	0
August	19,001	. .	*30½	*137	15	0

* Closing quotations Friday, August 4.

The Importation of Copper Coins.

Recently a lot of copper coin was imported into New York from India, consigned to the Oxford Copper Company. The newspapers jumped to the conclusion that the present high price of copper had led to the withdrawal from circulation of copper coin. Robert M. Thompson, president of the Orford Copper Company, disposes of this idea as follows in a letter recently published:

"At the par of the rupee the value of these coins is about 1½ cents, and as there are 34 coins to the pound of copper, the circulating value would be equivalent to about 51 cents per pound of copper; but as the silver rupee has dropped to about two-thirds of its nominal value, the circulating value of the coins would be equivalent to about 34 cents per pound of copper; whereas these coins, when sold as old metal, realized at the point of sale less than 14 cents a pound. The fact is, that the Government of one of the small States called in the copper coins in circulation and replaced them with small silver coins, and then, of course, had to sell the old coins for what they were worth as metal, the existing price of copper having nothing whatever to do with the transaction, but being part of the general change in the standard now taking place in India."

About a year ago a delegation of engineers from Sweden made a tour of this country to look at the improved machinery for handling ore and other heavy materials. They visited the Vulcan Foundry & Iron Works of Toledo, Ohio, and also made a trip to the iron mines in the Northwest, where they saw the steam shovels of this company work. They left an order with Alex. Backus, president of the company, for one of their machines, and it was shipped to Grangesberg, Sweden, last fall. During the week President Backus received a newspaper from Sweden with a complete article on the working of the Vulcan shovel. It is doing even more than was claimed for it, and the Swedes are greatly elated over their purchase. As well as working it in the mines they are using it to build stone walls and do all kinds of heavy lifting.

Lake Ore Matters.

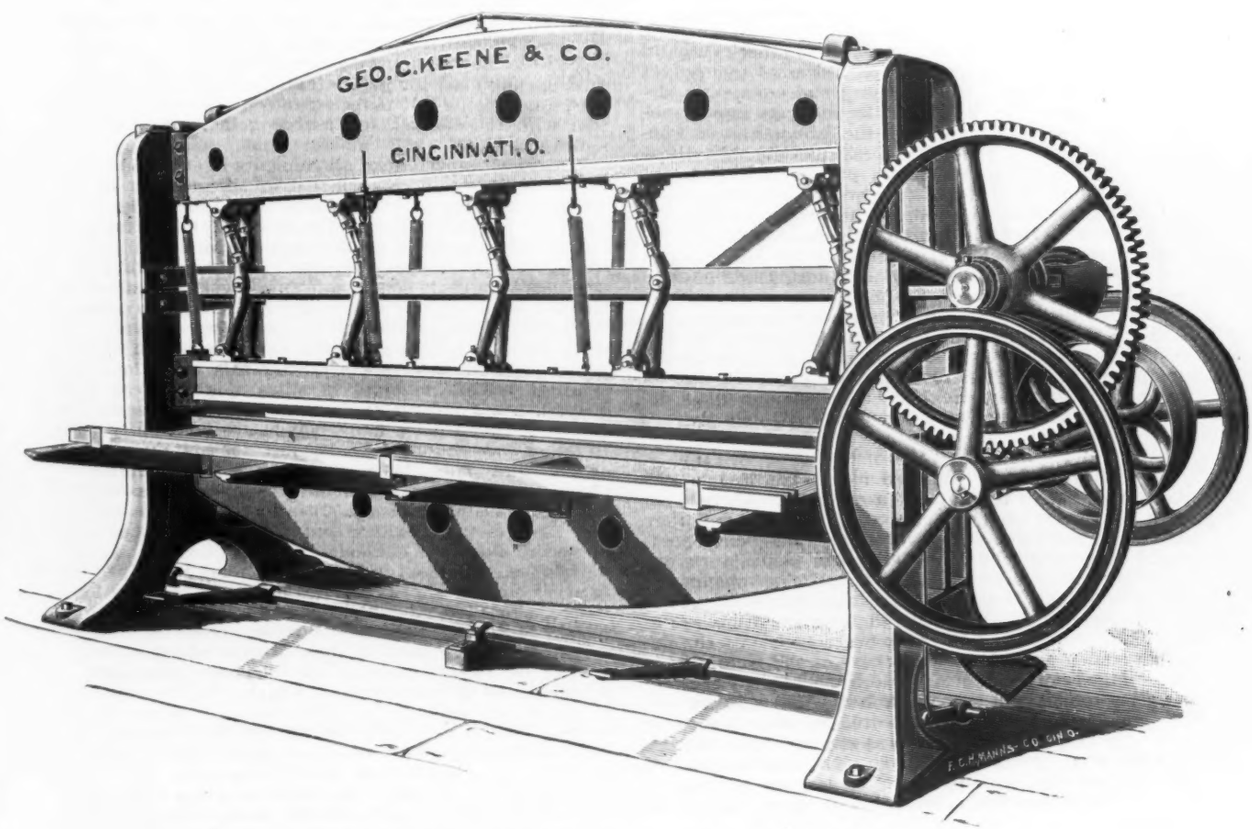
DULUTH, August 7, 1899.—In conversation with President Bacon of the Minnesota Company he said he looked on the Menominee as very far from full exploitation as yet, and said that "the width and length of the iron bearing formation of slates and diorite had not yet been determined." There are miles and miles of folds, droppings and faults in the beds of that region where ore is as likely to have been concentrated as where it has already been found that have not been explored. His company have nearly 100 locations there, and have a mile in length on the strike of the great Aragon lenses that is promising. Exploration, such as the Minnesota Iron Company understand thoroughly from their experience in opening the vast fields of Minnesota, and in which their managers have proved successful and expert, ought to show, at minimum cost ore bodies as large as any that have been found on that range so far. And the company are paying little or nothing for the privilege of entering these lands. Continuing the conversation he said that there "had been found in that region within the past few weeks what appeared to be a valuable new range. It lies between Felch and Iron Mountain, and development work so far done seems to indicate an important discovery. Ore assays are from 42 to 56 in iron, from 0.007 to 0.0003 phosphorus and high in silica," surely good enough for anybody, but at depth these assays have since been improved upon, iron content having risen to 60.

Explorations have shown a width of 140 feet, and though the finds may never load a ship they are quite likely to. The Minnesota Company have intrenched here also. Another important find in the Menominee region has just been made on the Greininger property under option to Pickands, Mather & Co. The property has been a farm for 10 years, but a vein of 61 per cent. ore has been cut with the drills about 65 feet down, and 200 feet along the formation the same results are met with, 200 feet of jasper and paint and 60 feet of ore. The trend of the ore is such as to indicate other mines in the vicinity. The Lotta mine, on the Michigamme River, is being reopened. It has been an idle exploration since 1892, when it was a promising prospect. A newly found ore body at Hiawatha has been test pitted for a width of 300 feet, and a shaft is now being sunk to test the formation. This is about a mile west of the Greininger property. The Commonwealth Iron Company are reopening the Hollister mine, idle for years, and many other works are under way in the neighborhood. The Mastodon, an old and abandoned mine, is to move its headquarters to Pittsburgh, it being the property of the Oliver Company.

The list of reopened mines in the Marquette region, idle since the panic, is growing. Davis, at Negaunee, belonging to the Breitung Estate, is to open; so is Goodrich, 4 miles south from Ishpeming; so is Humboldt, idle ten years. Davis will employ 100 men in the old workings and in exploring. Imperial mine, reopened by Cleveland-Cliffs Company, is now shipping, and employs 100 men. Boxdale and Bessie, at Humboldt, are being unwatered, and will soon be cleaned out for mining. They have been idle since 1894. Lake Superior Company have started their great Gates crusher, which has been under construction for a long time.

On the Mesaba range the Minnesota Company have let a contract for an additional 500,000 yards to the Drake & Stratton stripping at the Fayal, which makes 1,600,000 yards the firm have at that mine. On the first contract some 200,000 yards have been moved, on the second considerably less, and the third will be started immediately. It will probably all be at No. 3 shaft, enlarging the area for milling or shovel mining. Next year the Fayal ought to lead every record ever made in the Lake Superior region. Close to the Hibbing town site mine, sold recently, J. T. Jones has just drilled into 30 feet of ore at a depth of 120 feet. The ore is very good grade. Other leases have been taken there.

D. E. W.



THE KEENE CRIMPING AND CORRUGATING MACHINE.

The Keene Crimping and Corrugating Machine.

The 12-foot double plunger combined crimping and corrugating machine, built by Geo. C. Keene & Co. of Cincinnati is fitted with an automatic clutch without springs, which obviates the noise usually made by a clutch. The machine is operated by a cam and roller and crank shaft, no eccentric or yoke being used. The plungers are counterbalanced with springs. The toggles are of cast steel and are so fitted in their sockets that there is no strain on the pins. The machine will corrugate No. 16 gauge and crimp No. 20 gauge steel, and with suitable dies will form all kinds of sheet metal roofing, siding and ceilings.

The Mexican Mineral Railway Company have been reorganized, and the new corporation propose to extend the line immediately southward to the City of Mexico. The road is now 25 miles long and runs from Monterey to the San Pedro mining district.

The Manufacture of Enamels.—I.

BY JOSEF VOLLKOMMER.

Its History as an Art.

By the term "enamel" is meant a coat of soft, mostly opaque glass, applied and melted to keramic or metallic products in such a way as to form but one solid body. Where and when work of this kind was first done history does not record, yet we find enameled ornaments in Egyptian tombs as early as the twentieth century B. C. Later specimens from the same country, for instance, the necklace and other decorations of King Rameses II (1400 B. C.), show a high degree of perfection and a technique not much differing from our own for similar work. This was at a time, too, when the nations of Southern Europe were mere savages, who scarcely knew even the use of metals. During the following period of Greek and Roman civilization, enameling, like the manufacture of glass, received but little encouragement, being foreign inventions, and therefore considered rather barbarian industries. With the fall of the Roman Empire those arts were completely lost, at least in Europe.

Nearly a century later the Byzantines, through their commercial relations with Persia and other Oriental countries, had an opportunity to acquaint themselves with the principles of glass making and enameling, developing rapidly the latter art to such an importance that in the earlier middle ages the goldsmiths of Constantinople supplied other European nations with those peculiar articles for sacred and profane use (vitrified pictures, reliquaries, enameled jewelry) which even at the present time are considered of priceless value by connoisseurs. After the fourteenth century we find famous enamelers in several cities of France and Italy, among whom I may mention Benvenuto Cellini, who wrote the first treatise on the manufacture of enamels and colored glasses.

Until the beginning of this century enameling was considered strictly a decorative art and limited in its application to the precious metals and copper. Its use on iron as a preservative against corrosion and other destructive influences marks a new era of its history.

Use of Enamel in the Iron Industry.

Only 50 years ago enameled iron ware was looked upon somewhat in the light of a curiosity. There were but a few factories producing such articles, and they maintained the greatest secrecy concerning their operations. At present our large stamping plants turn out every day millions of enameled household implements, with the result that earthen ware and tin plated vessels have almost entirely disappeared from domestic establishments. Well enameled iron ware embodies the desirable qualities of glass with those of the metal. It is almost impervious to chemical and mechanical destruction, easy to clean on account of its highly polished surface, and can be colored or decorated to suit any style or taste. Its iron body insures great strength and durability with a minimum of weight. The appreciation of these advantages by the public is largely responsible for the present flourishing condition of the enameling industries.

Enamel and Glass.

In order to understand thoroughly the principles governing the manufacture and use of enamel it will be necessary to refer to certain properties which it shares in common with glass. The basis of every enamel is a glass (mostly opaque) of such a composition that it will easily melt to the metal, adhere thoroughly and expand or contract with it in the same ratio. Therefore the physical and chemical qualities of glass apply also to enamel. Both are, as a rule, silicates—that is, a compound of silica with one or more bases. According to their chemical composition we distinguish:

1. Glasses with only one base (the silicates of sodium and potassium), the only silicates soluble in water.
2. Glasses with several alkaline bases and earths, such as potash, soda and lime compounds.
3. The silicates of lead, containing as a rule also potash and lime in some form.
4. Borax glasses, the only glass compositions not necessarily containing silica.

Colored and opaque glasses do not form a separate group. They are produced by adding certain metallic oxides or alkaline earths to any of the glasses enumerated.

With the exception of fluoric acid and a few concentrated solutions of caustic alkalies, a good glass should not be affected by chemicals, provided it consists apart from silica only of a small proportion of alkalies, for instance, such as potassium and calcium. Silicates containing large quantities of bases, especially sodium compounds, further the silicates of lead and the borax glasses, are of a less durable character. The fusibility of a glass or enamel is in an inverse ratio to its resistance against chemical action. Thus we find that the silicates of lead and borax glasses melt at a lower temperature than those containing sodium, that potassium silicates with calcium require more heat than the former. Enamels consisting entirely of silica would be the ideal acid proof enamel, could they be fused under ordinary conditions. The composition of an enamel or glass is determined by the use it is intended for. Silicates of lead, for instance, have intense colors with a very high gloss. They are much demanded by jewelers and used generally where a pleasing effect and appearance is of more importance than durability. For most industrial purposes these lead enamels, however, are objectionable, being easily affected by acids and hence not durable. Kitchen utensils containing these enamels are dangerous if used for boiling or cooking on account of the liability to form lead poisons. For such articles the silicates of potassium and sodium in combination with calcium, borax, &c., form the best enamels.

Raw Materials.

The raw materials used in the manufacture of enamel may be subdivided into:

a. Substances forming the body or basis of enamels.
b. Substances regulating their fusibility.
c. Bleaching or neutralizing agents.
d. means used for producing colors and opaqueness.
e. Ingredients not entering into a chemical combination with the enamel, but assisting in its manufacture and application.

The most important of all elements in enamel is silica.

Silica.—Silica, a combination of silicon with oxygen (SiO_2) is one of the most abundant materials found upon the earth. It forms the basis of many minerals and earths, the most important of which are quartz, sandstone, the several varieties of sand and flint. The best class of quartz consists of pure crystalline silica and has a specific gravity of about 2.642. It is exceedingly hard and therefore difficult to pulverize, so much the more since the mineral ought not to come in contact with any iron implements during this operation. The smallest traces of metal in silica might discolor the enamel. As a substitute for quartz, crushed sandstone or the so-called glass house sands are frequently used. In either case these materials must not contain any lime or clay, and should be absolutely free from metallic oxides. Flint has the same chemical composition as quartz, without forming crystals. It seldom appears entirely free from metallic oxides, and therefore is used only in special cases for enameling.

Alkalies.—The next important elements which we find in every enamel are the alkalies or bases. As mentioned before, silica melted with one alkali will form a glass, which, however, is soluble in water unless an alkaline earth like lime or some oxide of lead is added.

Alkaline Bases.—For our use the only compound of potassium to be considered is potash. It is mostly used in shape of carbonate of potassium, a very soluble, whitish salt, which, if not protected from the air, soon attracts moisture and becomes liquid and therefore should be kept in air tight barrels or boxes.

Among the sodium compounds used are soda (sodic carbonate) and the common salt (sodic chloride). Soda is obtainable in the market either crystallized or calcined. If crystallized soda is heated it boils up, steam escaping, and finally turns into a whitish powder. This process of evaporation is known as calcination. The soda used for enameling is supposed to be free of all metallic oxides and usually consists of 58½ per cent. sodium and 41½ per cent. carbonic acid. Since the quantity of water contained in crystallized soda amounts frequently to 60 per cent. and more, which requires considerable heat to evaporate it, the use of calcined soda is preferable, whenever the latter can be obtained of a sufficiently pure quality. Besides, it is less bulky, and will not foam or boil before smelting. If both kinds consists of the same percentage of sodium and carbonic acid, 10 pounds of calcined soda are equal to about 27 pounds of the crystallized product. Sodic chloride (our common sea or rock salt) and sodic sulphate (Glauber salt) are the other sodium compounds occasionally resorted to.

Alkaline Earths.—This term applies to such minerals which have pronounced basic qualities, yet unlike the previously mentioned alkalies only partly dissolve in water, and if fused with silica will form a product not soluble in water. The most important are certain calcium and magnesium compounds. To the first group belong the several kinds of lime, such as limestone, marble, chalk, calc spar, &c. The latter is a crystalline form of carbonate of lime, containing in 100 parts 56 of lime and 44 of carbonic acid. Owing to its very uniform composition and comparative purity this mineral commends itself wherever exact proportions of these chemicals are desired. Sulphate of lime is used in shape of

gypsum or plaster of Paris. The lime is added to the mixture usually as carbonate—that is, unburned. Calcined lime is only in a very few cases resorted to.

There are only two magnesium compounds which the enameler has to deal with: Carbonate of magnesia, which is a white, light, tasteless and almost insoluble powder, and the sulphate of magnesia or epsom salt.

Fluxes.—Among the substances regulating the fusibility of enamel borax is the most indispensable. It consists of sodium and boracic acid in form of transparent crystals. If heated, the water in these crystals is driven off, leaving a whitish powder, the calcined borax, which finally melts to a clear colorless glass, if exposed to a bright red heat. Enamels containing large quantities of borax melt at a much lower temperature than those composed of silica and alkalies only, wherefore by a judicious addition of borax their melting temperature can be adjusted. Another valuable property of borax is its tendency to dissolve metallic oxides at comparatively low temperatures, forming beautifully colored glasses. Therefore, in order to produce colored enamels it is necessary to add with the coloring oxides a certain quantity of borax, which will fuse the former very thoroughly and thus assure products of uniform appearance.

Fluorspar is a mineral which is found in large transparent crystals and consists of fluor (48 per cent.) and calcium (52 per cent.). Alone, it melts at a dark red heat and is especially valuable in such mixtures where lime is lacking, serving as a substitute for same, and also as a flux. However, enamels containing an excess of silica in proportion to their alkalies should not be fluxed with fluorspar, since high smelting temperatures are then requisite.

Felspar is another mineral found in most enamels, either as flux or as part of its body. It consists of about 65 per cent. silica, 19 per cent. alumina and 16 per cent. sodium and potassium. This high amount of silica permits its use as a substitute for quartz or sand, in which case, however, the proportion of the alkalies ought to be changed. Felspar renders enamel less fusible.

Glasses consisting of silicates of lead smelt at comparatively low temperatures, requiring only a bright red heat. The metal enters the enamel as an oxide and either litharge or red lead (innium) is used. These lead enamels are easily recognized by their high gloss and intensity of coloring. They can be applied in very thin layers, are easily burned and therefore are especially fit for decorative purposes, jewelry and all articles which are not much exposed to such chemical agencies as sulphurous gases or nitric acids. If used for cooking utensils they may give cause to lead poisoning, forming oxide of lead in connection with vinegar or fruit acids.

Baryta and witherite may also be mentioned as fluxes. In certain cases they may be substituted for oxides of lead, giving to the enamel a very dense, glossy surface. They fuse at about the same temperature as the silicates of lead, without being affected by reducing fire gases.

The National Lead & Oil Company.

The National Lead & Oil Company of Pittsburgh, better known as the White Lead Trust, are to have the strongest kind of opposition and right in Pittsburgh. The Davis Lead Company have just been organized in that city by prominent Pittsburgh capitalists, and negotiations are now under way for a large site. It is intended to put up a works that will make almost as much white and red lead as all the plants in the Pittsburgh district of the National Lead & Oil Company put together. Work on the new plant will be rushed night and day, and it is expected to have it completed in plenty of time to participate in the present boom in the lead business. A leading spirit in the new company is Geo. C. Davis, formerly one of the owners of the Davis-Chambers Lead Company, and until six months ago vice-president of the National Lead & Oil Company and general manager of all their Pittsburgh plants. Associated with him will be W. C. Jutte, a well-known coal operator of Pittsburgh and John W. Herron, a real estate dealer; M. K. Salsbury, president of the Calumet Coal Company, and other parties. The company will manufacture on a large scale white lead, oxides of lead and other products of pig lead and all materials entering into the manufacture of white lead, including linseed oil and painters' colors. It is expected that the plant will have a capacity of 6000 tons of white lead a year, and that the product will be secured more cheaply than in any of the existing plants. The demand for white lead is now very heavy, and the profits are good, although the prices have not advanced in proportion to other articles. Mr. Davis left the National Company to organize the new plant, and it will have the benefit of his long experience. The National Company operate the Armstrong-McKelvy Lead & Oil Company, the Davis-Chambers Company, the Beymer & Bauman Company and the old Pennsylvania White Lead Company, all in Pittsburgh. The T. H. Nevin Company of Allegheny and the Sterling White Lead Company of New Kensington, Pa., at present are the only active competitors of the trust in Pittsburgh.

The Industries of Central Pennsylvania.

HARRISBURG, August 8, 1899.—The mills of the Central Iron & Steel Company are all running full capacity night and day. Their plant consists of a large 126-inch plate mill, a new plant with all the modern improvements in handling, together with new 84-inch mill; 72-inch mill for light sheets and plates, including straightening rolls in both the latter mills; also 48-inch universal mill and puddle mill—altogether having an output of about 3000 tons per week. Their product goes to locomotive works, bridge works, shipbuilding plants and general boiler works all over the country. They are also making material going into construction of work for many foreign countries, including India, Australia, Japan, China and Corea. These mills are crowded with work now, and have been for months. There are orders booked that will test the full capacity of the mills of the company for months to come. More new business is being offered than they can take, and they are scarcely able to take care of their regular customers. The company are under the management of Chas. L. Bailey, president; James M. Cameron, vice-president; G. M. McCauley, treasurer and general manager; S. B. Boude, secretary. The works are operated independent of any combination, having individual control of their own business.

The Dauphin Bridge & Construction Company have booked orders sufficient to keep the plant in steady operation another year. It is probable that the plant will be enlarged to double the present capacity. The foundry of the Chambersburg Engineering Company recently cast a 6-ton drop frame steam hammer, the largest casting ever made in the foundry. Operations have been partially resumed at the South Harrisburg Chain Works. The Pennsylvania Steel Company have completed the shipment of 300 tons of splice plates for the Victorian Railway in Australia. A large order of rails for the same company was turned out at the Sparrow's Point plant of the same company.

Puddlers are in great demand. The mill at West Fairview cannot run double turn because the men cannot be hired.

The new plant of the Harrisburg Foundry & Machine Works will be ready for operation in a few days.

The Lucknow forge, under the management of James B. Bailey, is turning out charcoal scrap blooms. Additions to the forge in the way of bar and sheet train are now being made. The Champlain Company will act as selling agents.

At the Harrisburg Pipe Bending Works the inquiries indicate a big fall business. The company have just completed the shipment of two large transit system plants to London.

The second train load of material for the big viaduct on the Burmah railways in India has left the Steelton plant of the Pennsylvania Steel Company. S.

The American Switch Company.

The American Switch Company have been organized under the laws of New Jersey with a capital stock of $11,000,000, one-half 6 per cent. cumulative preferred and one-half common stock. The president is Alfred H. Mulliken, president of the Pettibone-Mulliken Company of Chicago. The directors will include owners of existing plants and prominent financial men. Anson R. Flower is one of the directors, and Flower & Co. are managers of the underwriting syndicate. The purpose is to include in this one company various makers of frogs, switches, switch stands and allied equipment. Mr. Mulliken denies that this company have any relations with the Federal Steel Company, other than that some of those interested have interests in both companies according to the *Railroad Gazette*. The companies included in this combination are the Ramapo Iron Works, Cleveland Frog & Crossing Company, Ajax Forge Company, Carlisle Mfg. Company, Paige Iron Works, Pettibone-Mulliken & Co., Weir Frog Company, Morden Frog & Crossing Works, Johnson Frog & Crossing Company, Elliott Frog & Switch Company and the New York Frog & Crossing Company. It will be observed that the combination has swept the field pretty thoroughly, so far as the big concerns go, although the Pennsylvania Steel Company (frog and switch department) seem to be out.

The Hemingway Coking Process.

Utilizing Western Coals.

Our readers have been advised from time to time of experiments being made in coking the low grade coal of Illinois and Indiana. Fairly successful results were obtained in several of these experiments, exciting strong hopes among those interested that the problem had been solved and that the West would soon thereafter be producing its own fuel of this character. The Illinois Steel Company expended considerable money in investigating by-product or retort furnaces for this purpose, and would probably have had a coking plant in operation at Chicago some years since but for the serious business depression of 1893 and the years following. They have not abandoned the project, but may take it up at any time, when other important matters are less pressing. Several of the other efforts in this line were dropped either because the processes of coking were too expensive or because proper financial backing could not be secured. The latest effort to coke native coal at Chicago, and the one which promises to fulfill long entertained expectations, has been made under the direction of Levi Z. and Joseph Leiter, both of whom have more than local fame as men of great commercial enterprise and business sagacity. They have supplied the necessary funds to enable experiments to be conducted on a proper scale by Joseph Hemingway, who has had long experience in treating Western coal and has invented several processes for coking, distillation, &c. For several months Mr. Hemingway has given an oven of his design comprehensive practical tests at Forty-fourth street and Wentworth avenue, Chicago, the fact being known to very few persons. Ton lots of coal from mines in many portions of the West were received and treated in this oven with results which were so uniformly gratifying that four ovens are now being built at Thirty-fourth and Iron streets, where much more room is available and where railroad and river facilities exist for handling materials easily and economically as the plant grows. In these four ovens, which are of large size, coal will be tested on a greater scale from various mines, and a decision will be made as to which is the most suitable for coking.

The oven in use in this process is of the bee hive type, which is so common in Pennsylvania and other coke producing States. It differs from the ordinary bee hive, however, in being fitted with a hot blast, obtained by blowing air over an incandescent bed of coal, but some other parts of the process are not disclosed, as they are not yet covered by patents. Mr. Hemingway states that this process not only produces coke from coal hitherto regarded as non-coking, but that it eliminates a considerable part of the sulphur that may be found in the coal and further that it will turn out coke in 12 to 13 hours equal to the usual 48 or 72 hour coke. Ovens of this character will cost much less than retort or by-product ovens if the production of coke is alone sought. They can be equipped for saving by-products under another of Mr. Hemingway's patents if that should be desired.

These processes are owned by the Universal Fuel Company, just incorporated in New Jersey with a capital of $1,000,000. Subsidiary companies will be organized in coal mining towns or in localities in which coke ovens can be economically located, taking licenses from the parent company. It is expected that coke ovens of this type will be built at several points in Illinois and Iowa in the next few months, as a ready market exists for coke at the reasonable price at which it can then be furnished. Should the anticipations of the inventor and his backers be completely realized when their coking plants are in commercial operation in the West a great industrial change will take place. At first small manufacturers and domestic consumers will probably be the purchasers of all the native coke. But eventually it will be used by iron and steel manufacturers to reduce their cost of production.

Bids on League Island Dock.—The Navy Department opened bids at Washington Saturday for the new timber dry dock at the United States Navy Yard, League Island, Philadelphia. The bidders were Farrell & Hopper, New York, $1,182,000; McGraw & Roosevelt, Philadelphia, $1,220,000; McIlvain-Unkelfer Company, Pittsburgh, $1,143,569; Curtis & Driscoll, Springfield, Mass., $750,000; George Pierce, Bangor, Maine, $949,973; Atlantic, Gulf & Pacific Company of New York, $749,000, and $3.50 a square foot for steel approaches; Degnon-McLean Construction Company, New York, $957,000. The general dimensions of the League Island docks are: Length over all, 750 feet; width on top, 144 feet; width on floor, 80 feet; entrance width, 101 feet; depth from top to floor, 40 feet; draft at mean high water, 30 feet.

An American Manufacturer on Labor and Machinery.

A correspondent who signs himself "American Manufacturer" has written a letter to the editor of the London *Ironmonger* from which we take the following:

Speaking from the standpoint of the writer's business, not because it is large or exceptionally progressive, but because it is probably typical in the points to be outlined, the subject frames itself into the several heads of men, plant, and methods.

Labor.

While there are exceptions, the working force is composed, as a whole, of intelligent men taking some pride in their work and having an interest in it beyond giving merely the least output for the most pay. Ordinarily our mechanic cares for his work, puts both brains and conscience into it, strives to improve it, and scorns poor workmanship. A few months since an Englishman asked the writer what proportion of time was lost in the factory through intemperance and was surprised to be told "no proportion at all." This does not mean that no men lose time from intemperance, but that the amount of time so lost is no factor in production, and occurs but in individual cases, often to be reprobated by the workman as well as the employer. We have had cases where workmen recovering from a spree have refused to resume work till they felt themselves in proper physical condition to give a full day's work, preferring that another man should take temporarily their place and pay rather than that they should be paid themselves for inefficient services. Our men are well paid because their output is large. They usually prefer improved apparatus, because by it they gain both in quantity and quality of output, and on both their wages depend. They are often suggestors or inventors of improved methods or apparatus for doing their work. There are, of course, exceptions, but, as a whole, the American manufacturer has a strong support in the world's markets in the quality of his working force.

Plant.

The plant operated by these workmen is constantly changing, rather by discarding apparatus whose efficiency is not equal to modern conditions and by receiving improved machinery in its place than by mere enlargements or by replacing worn out tools. It is common to set aside machines still in good condition because their design does not permit the most rapid or the best production. The superintendent of a large locomotive works here avows the policy of crowding his machine tools hard, expecting at the end of, say, two and a half years to throw them aside for improved and more efficient machines. Again, the machinery in use is frequently modified by improving the material in its various parts and by making attachments that add to its efficiency. It is common to improve methods on a job when doing it on a second order, and still again upon a third. There is, so to speak, a continued state of dissatisfaction with methods of production until the bottom has been reached, and to such an extent that we have a factory proverb running, "Six months ago is ancient history." Ceaseless evolution toward both better and cheaper production is perhaps the leading feature of American industrial activity.

Methods.

To a plant kept at high efficiency and such a working force as is described it seems natural to add the purpose to give the customer, within reasonable limits, not so much what the maker would like to sell as what the customer wants to buy. It is our custom to investigate, sometimes for months on end, as to what buyers desire, often to find that the article or design we prefer is unsuitable to the desired market. Also it seems right that the use the customer makes of the goods should be learned, and the output be adapted to his uses within the limits profit permits, reckoning that the pleased buyer is the best advertiser, and that the outlay to give him what he wants in the way he wants it is sure, like bread "cast upon the waters," to come back, only with interest, "after many days." It seems normal also that the buyer in another land should have placed before him advertising matter in his own language and currency, and certain liberality in furnishing samples and care in packing and delivering of goods are wise investments. Willingness to accept small and trial orders would seem a part of the general plan to show the customer that the manufacturer desires to serve him as fully as possible.

Our custom in making forgings to be finished by machining is to allow 1-32 inch on each surface for finish; where the finishing can be done by grinding, the regular allowance is 1-100 inch. Obviously the customer saves in his machining processes by this close working. We have been required, however, by English buyers to allow

⅛ inch for finish on a surface. If an American machine maker removes but 1-32 inch in his finishing, and his English competitor removes ⅛ inch, has not the former clearly an advantage? We have recently offered to German parties, as usual practice and without special processes, small forgings that shall not vary over 1-64 inch in thickness in a lot of 100,000. Forging accurately to gauge is common practice to save finishing labor.

Again, in many cases (we are one of them) the American manufacturer has become a specialist employing workmen who are themselves specialists. Is it not natural that he should excel in his line a manufacturer who, making many different lines or wide varieties of one line, is, so to speak, a general practitioner?

Finally the American manufacturer is largely free from inherited traditions, many of them worthy and fine, but some of them also serious handicaps in sharp competition. Much responsible work is in the hands of energetic and trained young men, who have ample scope for the development of original ideas in methods of production and management, and from whom such original work is expected. These men are accessible—the chance caller, though a stranger, may have an idea too good to lose. The writer has been both traveling salesman and proprietor. In the former capacity he recalls no case where access was refused; in the latter he would hesitate to refuse it.

New Method of Forced Draft.*

BY NELSON FOLEY.

The writer has called the system about to be described new, believing it to be original, and, up to the present, untried, except by himself; but he is naturally open to correction, should such not prove to be the case.

Fig 2.—Cross Section of Fire Bar.

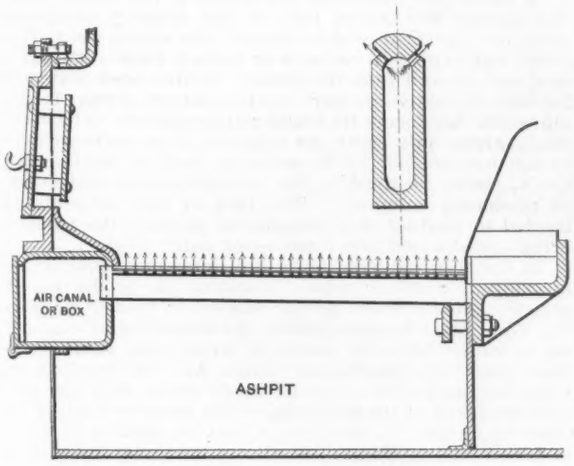


Fig. 1.—Vertical Section.

NEW METHOD OF FORCED DRAFT.

The fundamental principle of the system is that the fire bars themselves are utilized as a means of forcing the air into the fire. In order to accomplish this the bars are made hollow, and are perforated with a row of small holes along each side near the upper surface, the holes being placed at such an angle that the air is forced in jets into the fire through the ordinary spaces between the bars. The front ends of the bars are inserted into a box or canal under the fire door, which is in communication with a fan.

Fig. 2 shows a section of a bar, as designed for an experimental trial. It will be observed that the holes are at such an angle as not only to direct the air up among the fuel, but also to induce, by means of the jets, a draft from the ash pits. The top part of the bar is made umbrella fashion, so that the holes may have protection as far as possible from ash, dust or scoria.

Without being sanguine of a satisfactory result, it was thought that the benefits to be gained in leaving both stoke holds and ash pits open were sufficient to justify some experiments being made on a small stationary water tube boiler. The results have been so far beyond expectation that the subject appears to the writer to be of sufficient interest and importance to warrant his bringing it under the notice of the institution; in fact, it seems to him to bid fair to cause some revolution in forced combustion. The results of these experiments are appended at the end of the paper.

Up to the present only short bars have been experimented with, but a sample bar up to 4 feet in length has been cast without difficulty; at the same time, where it is possible to have an air box at each end of the grate, the bars need never exceed the moderate length of, say, 3 feet. A method of uniting them in the center has also been devised for such cases as when the front only is available for an air box, and a long grate is desired. It should be noted, however, that it is thought preferable, in order to give facilities for good stoking, cleaning fires and keeping the fires in good order, to work always with short grates, and use a high rate of combustion.

It has been observed during the experiments that little refuse falls into the ash pits, that the bars keep perfectly cool, and that the clinker does not adhere to them; in fact, from time to time, the clinker can be removed from the fire without drawing the same.

It has also been noticed that during forced draft the bars do not suffer at all, although it is only fair to say that on one occasion the ends of some bars were burnt because the bridge at the back was not in order, a space being left between it and the bar ends.

The bars have been tried at natural draft, and after ten days' continual steaming during day hours no more than the normal injury was sustained, and only a few holes were found choked.

It is intended, in adopting this system, that the full advantage should be taken, making the grates moderate in length, and running with forced combustion as a normal condition. In this manner the destruction of fire bars would be reduced to a minimum, and the fires could be regulated to a nicety.

The fire can be regulated also, so that it is a matter of indifference whether the fire door is open or shut; but, of course, it cannot be overlooked that, at very high rates of combustion, especially with ordinary cylindrical boilers, the fire door must be kept shut, as with the ordinary ash pit draft.

Presuming a long life for the individual bars, the cost of production need not, it seems to the writer, be considered a serious matter; for the foundry in Naples it comes to about 10 centimes per kilogram.

The experimental grate was 2 feet 7½ inches long and 2 feet 7½ inches wide, composed of bars of section as shown in Fig. 2; in the case of Experiment 5, however, half the length was bricked over. The air pressure was obtained from a smithy blast, the strength of which was never more than 80 mm. (3 1-5 inches). Coal, Cardiff of good quality. Hight of funnel from bar level, 17 feet 6 inches.

Results.

Experiment.	Air Pressure.	Coal, pounds per hour per square foot of grate.	Jet holes		Bars.		Observations
			Diameter.	Pitch.	Length	Surface.	
	in.		in	in.	ft. in.	sq. ft.	
1	1.38	29	1/32	1¼	2 7⅛	7	Evaporative trial, careful firing.
2	1.45	32	1/32	1¼	2 7⅛	7	Ditto.
3	1.25	41	1/32	1¼	2 7⅛	7	For combustion only.
4	1.73	40	1/32	1¼	2 7⅛	7	Evaporative trial, careful firing.
5	3.15	72	3/32	1¼	1 3⅛	3.22	For combustion only.
6*	3.15	58	1/16	1¼	2 7½	7	Evaporative trial, careful firing.

* During this trial it was thought that for this rate of combustion the passages to the funnel were too contracted. On measuring same they were found to be collectively between one-sixth and one-seventh of the grate area, whereas the funnel area itself was one-fifth

* Paper read before the Institution of Naval Architects.

A Portable Air Compressor.—A portable air compressor is manufactured by the Christensen Engineering Company, Milwaukee, Wis. It is mounted on an ordinary hand truck, so that it can easily be moved around shops, yards or where field work is carried on. It can be driven with belt, steam engine or gasoline engine, or is equipped with its own electric motor, which can be connected with a lamp or power wire. The action is controlled by a governor, which starts or stops the compressing when certain pressures are reached.

Even now the railroads entering New York are considering the question of reduced rates for the Dewey reception. They may be relied upon to do their part toward influencing people to make the trip.

The Utilization of Waste.*

JOHN BIRKINBINE, PHILADELPHIA, PA.

The purpose of these notes is to suggest the importance of utilizing what we consider as waste, instancing a few applications, with the expectation that others will present, in more or less detail, means which are or which may be used to transform refuse into articles of value.

Without detracting from the credit deservedly given to the person who causes "two blades of grass to grow where one had thrived before," or to another who contributes to "make the desert blossom as the rose," prominent places among the benefactors of mankind may be claimed for those who utilize what is or what has been considered as waste.

Webster defines the noun waste, in the sense of the present discussion, as "lying unused, unproductive, of no worth." Applying this definition, the man or woman who reclaims what is unused, converts to good purposes that which is unproductive, or brings value to that which is esteemed as worthless, benefits mankind, and adds to the material wealth of the world.

What is the waste or refuse of one industry may be and often is the raw material of another, but the extent to which such waste can be used is influenced by local conditions. It is comparatively easy to point out waste in nearly every process of manufacture, in our homes, and in our method of living, but to correct this is, in many instances, impracticable. We recognize how great the waste is in all departments of industries and in our households, and few realize how much is being done toward utilizing this refuse material. But with all that has been accomplished there is a wide field to be covered before we reach the Utopian condition where a useful purpose is found for all that is now waste or considered as such. The many scavengers who extract value from the proceeds of the city dump heaps in waste paper, rags, old leather, coal, bottles, or old metal, probably represent the most popular notion of the utilization of waste products, a utilization more important than is ordinarily appreciated, and representing gross money value which would appear fabulous. The army engaged in this reclamation is large and its scouts appear at every dump, upon the scenes of every fire before the embers are cooled, or assail our homes to collect whatever of apparent value may be obtainable.

The late Colonel Waring asserted in a magazine article that in the present state of knowledge the refuse from a city of 50,000 inhabitants possesses sufficient commercial value for the municipality to derive revenue from the sale of the privilege of collecting it. The facts that old rags and paper enter into the production of other paper, that scrap iron and other metals are transformed by the cupola or furnace into new forms, that leather scraps are useful in chemical manufacture, apparently cover the extent of popular knowledge, unless the legend is accepted that old paper, tin cans and bottles are the most nutritious food for goats. An inventor of a pulverizing apparatus, in inviting attention to his invention, asserted that his machines were employed to reduce old bottles, broken crockery, &c., into impalpable powder as a constituent of a well advertised scouring soap. The city waste is of enormous proportions, and the refuse from homes and manufactories is great. In addition to the manufactures or special industries which depend upon the waste of others for raw material, there are those which are profitable only because their waste is put to some useful purpose. In some instances the original product is now the by-product, and what was formerly refuse represents the greater proportion of value.

The possibilities of utilizing waste in a single direction were suggested by a visit to a large button works in Connecticut, where I was informed that 90 tons of buttons had been made in one month. It is impossible to suggest the number of buttons represented by 90 tons, or to imagine the multitude of stitches required to fasten them to clothing, or even to guess at the number of "swears" which were encouraged by the failure of individual buttons to maintain their responsibility. The material used to produce these buttons was the remnants of the sheets of tin plate from which the bottoms and caps of cans for blacking and other boxes had been cut. After the button blanks had been punched from this tin plate, the small triangles of metal connected by iron threads were compressed in a form under a drop hammer and subsequently shipped away to be made into sash weights.

Some of the prominent utilizations of waste products which are well known to-day are in connection with the fuel supply. In the production of charcoal from wood there are large volumes of acetic vapors which, when condensed, are of considerable value. By charring the wood in ovens or retorts and conveying the vapors to condensers and stills, the products are charcoal, pyroligneous acid, tar and uncondensable gases of considerable thermic value. These gases are used as fuel, the tar is merchantable, and from the pyroligneous acid methyl alcohol, acetic acid and various commercial acetates are produced. The influence of locality is quite marked in this utilization, for at some iron works many thousand cords of wood are annually converted into charcoal, the pyroligneous acid as a by-product being made into acetates and wood alcohol. At other works the wood is charred to secure the pyroligneous acid, the charcoal being a by-product, but most of the wood cut for charcoal is charred and no effort made to collect the acetic vapors.

The same principle holds in regard to the manufacture of coke. As a rule, the products of distillation from the coal while being coked pass off into the air as dense smoke and are wasted, but at a number of localities in this country and abroad the volatile matters are condensed and commerial ammoniates, tar and gases of calorific value are utilized. It is claimed that, in addition to the commercial by-products from coking 10 tons of average bituminous coal, incondensable gases, equivalent in calorific value to 1 ton of coal, result.

A liberal portion of the coal supply of Philadelphia today is made up of sizes which were considered unmerchantable, and which were consigned to the waste heaps within a few years. Now this coal finds a ready market, and piles of refuse are being reworked to secure the smaller sizes of coal available, and in some cases the refuse from the washeries (which is mainly disintegrated shale) is utilized to fill the portions of the mines which are worked out. Coal waste was considered of sufficient importance to have a State Commission appointed to investigate it a decade ago. Special furnaces, grates, &c., to utilize this small coal are designed, and there is widespread interest in smoke abatement. The disintegration and washing of inferior coal to produce coke, the employment of the gas producer, are incidental to the utilization of what otherwise would be wasted.

A prominent American utilization is the cotton seed. Throughout the cotton belt of this country numerous mills are operated which convert the cotton seed, formerly left in piles to rot or to be burned when sufficiently dry, into oil and food for cattle. Cotton seed mills are features of many Southern towns, and are sought for as industrial developers by municipal promoters. The cornstalk, whose only functions appeared to be to contribute to the manure pile or to serve as food or bedding for cattle, seems destined to find a considerable utilization in producing cellulose. The pith of the cornstalk is treated to produce this remarkable product, the balance being transformed into compressed cattle food.

In the iron industry there are numerous applications in utilizing waste or refuse, including the production of cement, mineral wool, paving blocks, or monolithic paving, from blast furnace cinder; the remelting or converting of unmerchantable masses of metal, ladle sculls, crop ends, shearings, punchings, filings, &c.; the rerolling of rails; the utilization of blast furnace gas to heat air, produce steam, &c.; the restoring of the exterior heat of an ingot by means of a soaking pit, and the sinking of scrap in forges and furnaces; the almost universal generation of steam by waste heat, &c., in mills, &c.

One need not be classed as old to recall the scum which covered every stream draining a gas works. The resulting tar, the ammoniacal liquor, the coke, are all now put to use, and from the former some marvelous products result. We would hardly expect the sweetest substance known, or the nearest imitation of the flavor of the vanilla bean to be coal tar products, nor do the marvelous anilin colors suggest coal as their ancestor. The petroleum industry abounds in interesting surprises of products made from what were formerly waste, which some of our members can describe better than the writer. Many carbons used in electric engineering are formed of what was a waste product from petroleum distillation, or from gas retorts.

The various systematic methods of exploiting mines and applying timber supports to the workings permit of obtaining a larger proportion of mineral from a given area, and the application of chemistry to metallurgic process aids in extracting from what was formerly waste rock much that is of value. The chlorination, the cyanid and other processes recover precious metals from what until late years was considered unproductive rock.

The condensation of fumes resulting from roasting ores, the treatment of acids or liquors which have performed their purpose in manufacturing processes, are instances of the utilization of waste. The mining city of Butte, Mont., is now demanding some process which will utilize the sulphurous fumes from the smelters, which make life in that city undesirable—a waste product which some day will represent great value, but which now demands large expenditures to get rid of.

Water strongly impregnated with copper is pumped from the copper mines, passed over old scrap iron, to which it adheres, and in this way large quantities of fine

* Read before the Engineers' Club of Philadelphia.

copper are recovered. The blue billy, which is a by-product in the treatment of iron pyrites for the manufacture of sulphuric acid, is an important portion of the charge of many blast furnaces, and the silicate of iron left after abstracting copper from cupriferous pyrites has a similar use.

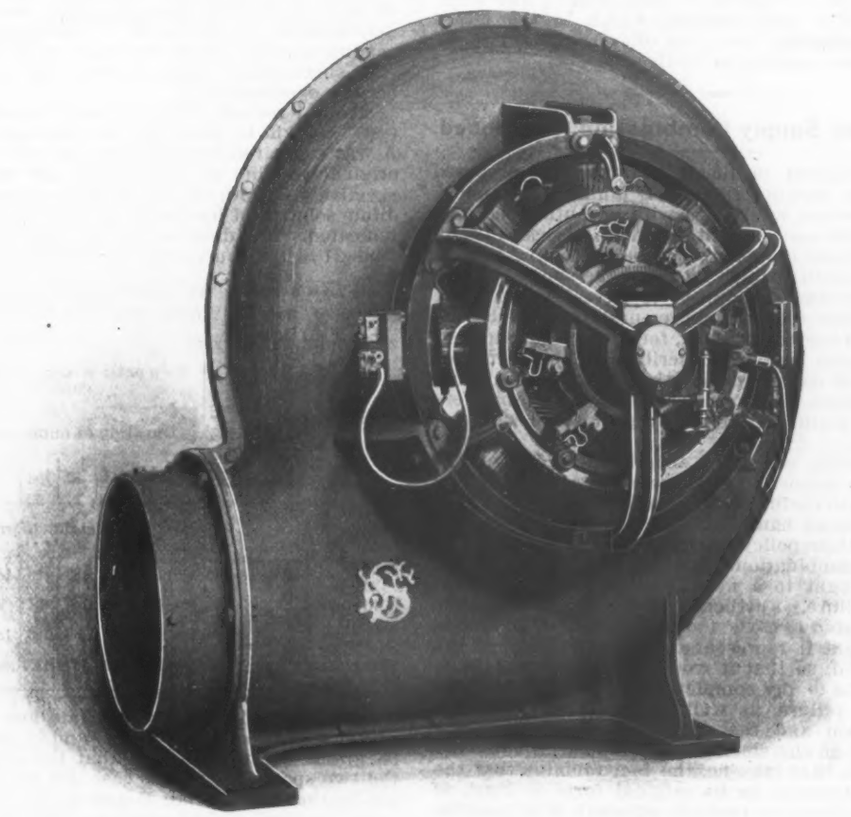
The lumber industry supplies numerous instances of refuse utilization, and in many localities the proportion of slabs, strips, &c., fed to the "hells" is much below what prevailed a few years ago. The cores cut from pump logs are made into pillars or round posts, the slabs are cut into box boards or lath, shingles, &c., and sawdust compressed with a cementing medium is also formed into imitations of carving. A number of minor wood working industries rely upon the waste from saw mills, and in the mills the effort to reduce the loss in sawdust has developed the band saw with its narrow "kerf." At some Swedish iron and steel works sawdust and saw mill refuse are gasified, the gas, after being freed from moisture, being used as fuel.

Instances of utilization might be multiplied, but those mentioned may suggest to some present various means employed in special industries to convert to a useful purpose what was refuse. The admission that in our modern steam engine only a modicum of the calorific energy stored in the fuel is used, shows that a wide field is still before us in reducing waste. The water powers which are being utilized demonstrate how great is the power which has been permitted to go to waste, and which in many cases may be conserved. Perhaps enough has been said to suggest how numerous are the utilizations of refuse, and how many are the opportunities for future advances. That there is a use for everything we all admit; that practical use can be made of everything will depend largely upon local conditions. But it is evident that the industry or municipality or home which is able to obtain the greatest value from what under normal conditions is wasted most nearly approaches this ideal.

A Washington dispatch states that, with a view to testing the value of automobiles for the collection and delivery of mail, the Post Office Department authorized William G. Edens, an assistant superintendent of the free delivery division, who has been investigating this subject, to make a proposition to an Indiana firm of automobile manufacturers to equip the office at Alexandria, Ind. Free delivery is to be established at Alexandria, and it is proposed that the company shall put in service there sufficient automobiles to enable the carriers to perform all their work of collecting and delivering the mail by their aid.

A New Type of Electric Fan with Eight-Pole Motor.

In the accompanying illustration is presented a new type of motor driven fan, which has been brought out by the B. F. Sturtevant Company of Boston, and which combines the features of compactness and lightness. The eight-pole feature naturally results in a lighter machine for a given output than is possible with a less number of poles. For driving fans of this description it is necessary that the motor should be constructed for moderate speed, although for other classes of fan work extremely high speeds are desirable. The fan itself is of the Monogram type, built by the company. The shell is of cast iron, the two sides being bolted together at the rim, and a separate outlet casting being attached.



NEW TYPE OF ELECTRIC FAN WITH EIGHT-POLE MOTOR.

The inlet is upon the side furthest from the motor, the motor side of the fan being closed, thereby preventing the drawing of dust across the commutator and armature. The field ring, which contitutes the frame of the machine, is made of wrought iron, cast iron, or cast steel, according to the size, the sizes ranging from 3 to 137.5 horse-power motors.

Wrought iron field cores are used, and a special type of cast iron pole shoe, which by its peculiar shape and size is one of the principal elements in rendering this machine capable of extreme variation of load without sparking of the brushes, or any shifting or adjustment whatever. The field coils are machine wound, and this form of field being extremely open, the windings present the greatest amount of radiating surface with consequent perfect ventilation, which prevents any great accumulation of heat. As these motors are designed with special reference to low speed and high efficiency, great care has been taken in determining the size of the armature that would be favorable to high efficiency at partial loads, and at the same time allow room for the necessary amount of copper. The armature coils are built up of laminated, slotted disks, mounted upon a cast iron spider, having a hub projection for the reception of the commutator. The core disks are solidly clamped between two brass rings, which have teeth to correspond with the core teeth, and which

support them at both edges of the core, and not only protect the teeth from being damaged or misplaced, but present a smooth and well rounded corner for the support of the slot insulation. These armatures are of the coil wound drum type, and usually have the two-circuit winding, although in some cases a multiple winding is used. In the two-circuit winding there is opportunity for employing larger wire and fewer turns, thereby making the coil simpler and cheaper, while at the same time each coil has only a fractional influence on the total electric force generated, so that the electrical balance of the armature is readily maintained. The special feature of this type of winding lies in the fact that as few as two sets of brushes can be used.

The commutator is of large diameter, with pure rolled or drop forged copper segments, supported in a cast iron shell of spider construction, thoroughly insulated with mica and micanite. Owing to the design but little energy is dissipated at the brushes, and overheating of the commutator is not likely to occur. Reaction brushes of carbon are generally used, and supported on a special rigging which is in turn carried by brackets attached to the field ring. The tripod bearing yokes serve to support the shaft upon each side of the machine and to render it independent. The bearings are provided with sleeves, which in the larger sizes are self aligning, and ring oilers are used to secure positive and continuous lubrication.

The Plumbing Supply Combination Abandoned.

As was intimated in these columns, the proposed combination of manufacturers of plumbing supplies, incorporated several weeks ago with an authorized capital of $35,000,000 under the title of the American Plumbing Supply & Lead Company, has been meeting with a number of difficulties which menaced the success of the scheme. These obstacles appear to have been so great as to bring about the announcement this week of the abandonment of the undertaking, for the present at least. Notices have been sent to subscribers to the securities of the projected company that they are released from their subscriptions. The options held by the promoters on the various plants expired on August 1 and were not renewed.

Various reasons are given for the dropping of the scheme, which seemed a few weeks ago about to be brought to a successful consummation. The fact, however, that the large banks and trust companies in New York changed their policy in regard to the underwriting of industrial combinations just at the time the plan was being brought to a head was probably the main cause of its failure. Further, it is likely that the combination attempted to cover too wide a field of products, and the fact that it represented only a fraction of the industry affected, so that it would have been unable to control the trade to any complete degree, had something to do with its failure, as well as the further facts of overcapitalization and the growing reluctance of the public to invest in the stock of new industrial combinations. However that may be, the fact remains that the proposed consolidation, in its original form at least, is defunct and will not be revived, although it is possible that another attempt may be made in the fall if conditions appear to be more encouraging.

Advances in Freights.—On August 14 sharp freight advances will go in on pig iron, billets, mill cinder and the long list of articles taking the same rates from various points in the Central Freight Association to Connellsville and Johnstown, Pa., and from Pittsburgh to Corry, Pa. From Pittsburgh to Corry the rate on billets and the list of articles taking the same rates will be advanced to $1.30 per ton in carload shipments; on pig iron and the list taking the same rate, to $1.25, and on mill cinder and scale and its list, to $1.10. The rates from Cleveland, Lorain, Akron, Canton and Massillon, Ohio, to Connellsville and Johnstown will be advanced to $1.55 on shipments of billets, pig iron and the list taking the same rates; on mill cinder and scale and the list governed by these articles to $1.40. From Canal Dover and Cambridge, Ohio, the advance to Connellsville and Johnstown will be to $1.55 on billets, to $1.45 on pig iron and $1.15 on mill cinder. From Wheeling and Youngstown the rates on billets to Connellsville and Johnstown will be $1.45; on pig iron, $1.35, and on mill cinder, $1.05.

The record for volume of commerce passing through the Sault American and Canadian ship canals was broken during July. There were 4,024,789 tons of freight carried through, exceeding the tonnage of the corresponding month last year by 778,000 tons, and more than the entire traffic of 1885.

Nickel Steel versus Mild Steel Boiler Tubes.*

BY A. F. YARROW.

Feeling sure that anything which may tend to increase the durability of water tube boilers will interest the members of our institution, I have much pleasure in laying before you the results of some experiments which we have recently carried out with a view to ascertain the comparative merits of nickel steel tubes and tubes of mild steel, such as have hitherto been used in water tube boilers. The nickel steel to which this paper refers is an alloy, having from 20 to 25 per cent. of nickel, and in these experiments we have tried to repeat as nearly as possible the worst conditions as regards wear and tear to which tubes in water tube boilers are subjected.

The deterioration of the tubes is probably owing (1) to the action of acids in the water, due to grease, which in spite of every precaution finds its way into the boiler; (2), to the tubes becoming overheated and oxidizing on the outside, through contact with the hot gases when passing from the furnace to the uptake; (3), to the action of the steam, which, if superheated, decomposes, causing deterioration on the inside of the tubes. The last two conditions occur when the tubes, from defective circulation, shortness of water, or from the collection of scale, become overheated.

Table I records what we have termed the "corrosion test." It will be seen that the piece of nickel steel tube A was compared with the piece of mild steel tube B, the original weights of which were 190 and 186 grams respectively. Both the tubes were immersed in the same dilute solution of hydrochloric acid for various periods, as indicated. The duration of the tests varied, as shown, from 21 to 168 hours, making a total number of hours for

Table I.—Corrosion Test.—Experiments to Ascertain the Effects of Acid on Nickel Steel and Mild Steel Tubes.

Marks and material.		Original weight in grams.	Two parts water, One part hydrochloric acid									Total loss in weight during 533 hours.
			Duration of immersion in hours									
			21	64	44	92	168	72	24	24	24	
			Weights in grams									
Nickel steel..	A. N. S.	190	190	189	189	188	186	186	185	185	185	5
Mild steel..	B. S.	186	184	173	166	140	101	98	94	91	88	98
Nickel steel..	E N. S.	188	188	187	187	186	183	182	181	181	181	7
Mild steel..	F. S.	188	187	173	162	137	112	95	92	90	88	100

all the trials of 533. The ultimate loss of weight in the nickel steel tube was 5 grams, and in the mild steel tube 98 grams. It will be seen that the original weights of the two specimens in this case did not accurately agree; but in the second trial, E and F, the tubes were of the same original weight—namely, 188 grams each. The ultimate loss of weight was found to be 7 grams with the nickel steel tube E, and 100 grams with the mild steel tube F.

The upshot of the above tests, it will be seen, is that the loss of weight in the first series of tests of the nickel steel tube amounted to 5 grams, being 2.63 per cent., and in the mild steel tube to 98 grams, being 52.68 per cent. In the second series of experiments the loss of weight of the nickel steel tube was 7 grams, being 3.72 per cent., and the mild steel tube 100 grams, being 53.19 per cent. The average loss of weight in the mild steel tube was therefore 16½ times what it was in the nickel steel tube.

It may be contended that the relative corrosion of the two specimens when using dilute hydrochloric acid does not correspond with what it would be with such acids as are present in boilers under working conditions, but it is not unreasonable to suppose that it may serve as a guide.

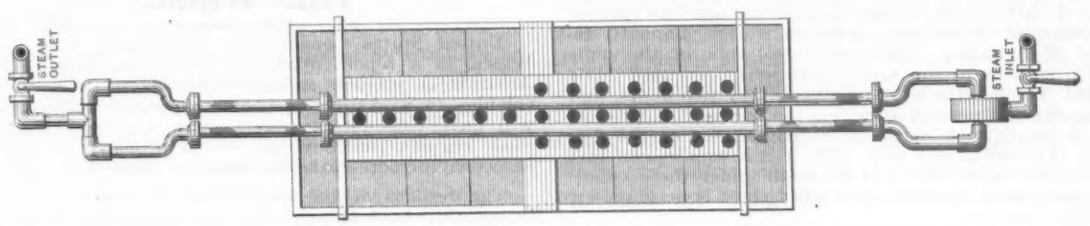
We will now turn to Table II, which records what we have termed the "fire test." This was conducted in the following way: Two tubes were placed side by side in a small brick furnace, where they were heated to the same extent, and in every way were practically under the same conditions. The loss of weight of each tube due to oxidization after they had been in a very heated state is indicated by the weights given. It will be seen that the original weight of the nickel steel tube C was 192 grams and the mild steel tube D was 185 grams. The total loss of weight in this series of tests was, in the case of the nickel steel tube, 47 grams, or 24.47 per cent., and of the mild steel tube 145 grams, or 78.37 per cent. In this case

* Paper read before the Institution of Naval Architects.

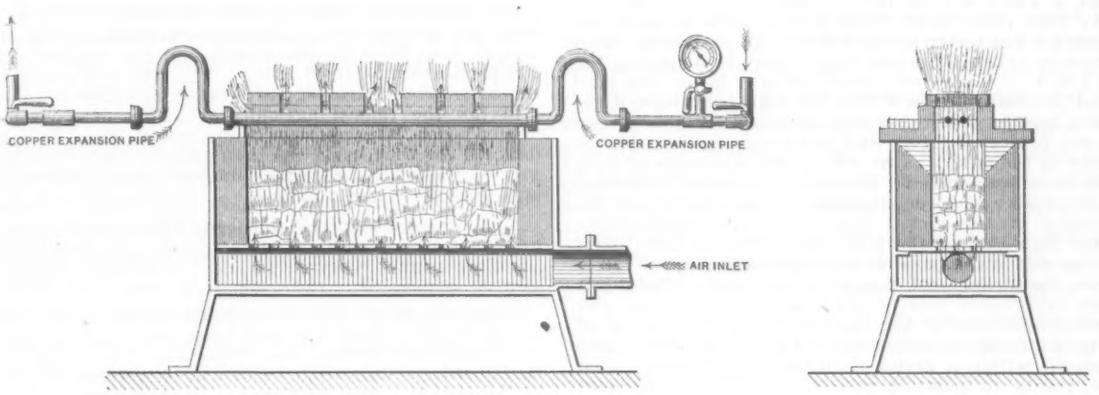
also the original weights of the two pieces of tube were not exactly the same, and we therefore repeated the experiment, as shown by G and H, in which the weights of the two tubes were identical—namely, 188 grams—and the loss of weight was found in the nickel steel tube to be 52 grams, or 27.66 per cent., and of the mild steel tube 143 grams, or 76.06 per cent. The average loss in weight in the mild steel tube was therefore 2.9 times what it was in the nickel steel tube.

These results were submitted to Sir John Durston, and he pointed out that the experiments did not accurately conform to all the conditions under which boilers are worked, inasmuch as the tubes, in the case of a boiler when the heating surfaces are not in close contact with the water inside, are subject not only to the action of the gases on the outside, but to that of the superheated steam on the inside. The correctness of this view is unquestionable, and we consequently tested two tubes having a length of 1 foot 8⅝ inches by a diameter of 1 inch outside and the other of mild steel, were placed side by side in a small brick furnace; at one end of each tube steam was supplied at 60 pounds pressure, it being allowed to issue slowly from the opposite end of each tube, thus insuring the steam being highly superheated. The original weight of each tube was 612 grams. After the experiment had proceeded ten hours it was stopped, as the mild steel tube gave out, steam issuing from a defective place. The loss of weight in the case of the nickel steel tube was 12.7 grams, and in that of the mild steel tube 85.2 grams. Deterioration in this case is due partly to the action of the steam inside the tube and partly to that of the gases outside.

The loss of weight of a boiler tube from deterioration at the commencement of its life being much less rapid than toward the end of its life, therefore the loss of weight cannot be considered as a quantitative guide for



Plan.



Longitudinal Section. *Cross Section.*

FURNACE FOR TESTING BOILER TUBES.

Table II.—Fire Test —Experiments to Ascertain the Effect of Fire on Nickel Steel and Mild Steel Tubes.

Marks and materials.		Original weight in grams.	Heated bl od red for 30 minu es and allowed to cool.	Heated bright red and cooled in wa er.	Scale removed.	Heated straw color for one hour and allowed to cool.	Tubes partly flattened to remove sc le.	Heated straw color for one hour and allowed to cool Scale removed.	Heated straw color for one hour and allowed to cool. Scale removed.	Heated straw color for one hour and allowed to cool.	Scale removed.	Total loss in weight in grams.
			Weight in grams									
Nickel steel.	C. N.S.	192	192	190	190	171	170	159	151	145	145	47
Mild steel....	D. S.	185	184	183	180	130	120	94	68	42	40	145
Nickel steel.	G. N S.	188	188	186	186	172	172	153	142	139	136	52
Mild steel ...	H. S.	188	188	186	184	147	145	89	58	51	45	43

by 14 L. S. G. This experiment we termed the "superheated steam test." The experiment was carried out in the following manner: Two tubes, one of nickel steel

durability, and we continued the superheated steam test as follows: After the mild steel tube had burnt through and allowed the steam to escape, we replaced it by another similar mild steel tube, corresponding to what would be done in retubing a boiler. The experiment was then continued, and it was found this second mild steel tube gave way and the steam burst through after eight hours, the nickel steel tube still remaining intact. We then substituted this burnt mild steel tube by another tube, and we found that after three hours the nickel steel tube gave out. Every two hours during these experiments the position of the tubes was changed about, not only end for end, but side for side, so as to insure that both tubes were subjected to the same conditions.

The durability of the nickel steel tube corresponded to 21 hours and the mean durability of the first two mild steel tubes to nine hours. I think, therefore, there is a probability that from this cause of deterioration a boiler would require to be retubed two and one-third times as often with mild steel tubes as it would with nickel steel tubes.

In the last experiment the tubes were heated to a bright red, and as it would be unwise to come to any conclusion based upon a single set of experiments, we repeated it in precisely the same manner with the exception that the tubes were in this further test only heated up to a very dark red. They were in this trial 3 feet 6 inches in length. The result is similar in character to that obtained when the tubes were heated to a bright red, the only difference being that the trial lasted considerably longer, as the deterioration was not so rapid, on account of the lower temperature. The greater durability of the nickel steel tube, as compared with those of mild steel, was fully confirmed. The nickel steel tube lasted 2.8 times as long as mild steel tube, and twice as long as the second mild steel tube.

Furnace for Testing Boiler Tubes.

The small furnace in which these superheated steam trials were made is here illustrated, and it will be seen that both ends of the tubes were fitted with copper expansion pipes, the object of which was to allow the tubes to expand and contract freely.

It is a well-known fact that a mild steel plate, or a mild steel tube, when heated and cooled, becomes permanently reduced in length, and this fact must be borne in mind in boiler design, because frequent variations in temperature take place in a boiler owing to the opening and closing of the fire door and the constant varying intensity of the combustion. This permanent contraction during the life of a tube varies according to circumstances, but we thought it well to have some record of its extent when subject to the conditions under which the tubes were placed in this superheated steam test. During the life of one mild steel tube, 3 feet 6 inches in length, heated 21 times to a dull red heat for periods of two hours duration each—steam passing through the tube at a pressure of 60 pounds—its length was permanently reduced 56-64 inches. The nickel steel tube of the same length, subject to the same conditions, increased 14-64 inches. The lengths were recorded every two hours, and the extent and periods at which the increase and reduction of length took place are clearly shown on the diagram. Although, as I have said, it is a well-known fact that a mild steel tube will diminish under these conditions the extent to which this takes place is perhaps not generally known.

In the foregoing experiments the tubes were ungalvanized. Had the mild steel tubes been galvanized there would have been a small addition to their durability, the extent of which is a matter of doubt.

We then made some trials with a view to ascertain the relative expansion by heat of the two materials. Two tubes were taken, 22 inches long, 1 inch in diameter, No. 16 L. S. G. They were inserted in a large tube and heated gradually up to a dull red for about three-fifths of their length. The tubes were fastened together at one end and projected freely and independently beyond the furnace at the other. A record of the expansion of each of the tubes was made by means of a trammel, and their expansion accurately determined. It was found that the expansion of the nickel steel tube was considerably greater than that of the mild steel tube. It was found that the relative expansion was approximately as three to four, the nickel steel expanding the most. The object of this experiment was to ascertain whether there was sufficient difference in the expansion and contraction of the two materials to cause trouble when nickel steel tubes are placed within a group of tubes of mild steel. The result points to possible risks in this direction, and, should it be desired to place nickel steel tubes in those parts of the boiler where deterioration proceeds with the greatest rapidity, and mild steel tubes elsewhere, this variation of expansion should be borne in mind. I am not prepared to say it is a source of risk; but it is one of those practical points which must not be overlooked.

All the specimens that I have referred to are here for your inspection, and I would remark that the tubes corresponding to Tables I and II were not quite of the same length, the nickel steel tubes being in all cases somewhat longer than the mild steel tubes, and therefore so far as this difference in size is concerned it was unfavorable to the nickel steel tubes, which exposed a larger surface of deterioration.

To illustrate the suitability of nickel steel from a mechanical point of view, I have brought a few specimens to illustrate its ductility, which is almost equal to that obtainable with mild steel. I would submit that the ductility of these samples is amply sufficient for all practical purposes. Nickel steel is considerably tougher in working than mild steel; it involves more labor, and causes greater wear and tear of the tools employed in expanding the bell mouthing, to which latter operation we have always attached the highest importance. The ductility does not seem to be impaired by sudden changes of temperature, as shown by specimens which have been bent after being heated and chilled. The tubes upon which our tests have been made were supplied, some by Messrs. Firth and some by Messrs. Krupp.

As regards cost, sufficient has not yet been done to know what the probable ultimate price may be; but, doubtless, it will be reduced from what it now is, if tubes of this alloy are introduced. Even at the present stage, judging from the experiments described, it is not unreasonable to expect that the longer life of the nickel steel will prove fully proportionate to its higher price, if the cost of the more frequent replacing of the mild steel tubes is taken into account; and if this surmise be correct, clearly a decided gain would be obtained by the greater trustworthiness of boilers with nickel steel tubes, and by avoiding the frequent loss of time involved in retubing operations, during which periods the boiler is laid up.

I would observe that we have tried experiments as to the comparative durability of nickel steel having small percentages of nickel, say up to 5 per cent., and have found that a very slight increase of durability is obtained by such alloys, but not sufficient to render them of any practical value for boiler tubes.

Summary.

From the foregoing experiments, I think it not unreasonable to assume that nickel steel—20 to 25 per cent. nickel—boiler tubes will have, as regards acid corrosion, a vastly longer life than those of mild steel, and, as regards deterioration from the action of heated gases or steam, at least twice the durability of mild steel. Before concluding, I should like to mention that these experiments have been carried out in consequence of our attention having been drawn to the probable advantage of nickel steel tubes by Mr. Andreæ, the engineer-in-chief of the Dutch Navy.

THE WEEK.

United States Consul Bell, at Sydney, New South Wales, in a report upon the federation movement in Australasia, predicts an early recourse by the federated colonies to a system of protective tariff duties which will have considerable effect upon American trade in those regions, inasmuch as it will probably be accompanied by preferential treatment for English products.

The returns of the United States Commissioner of Internal Revenue show that nearly $103,000,000 was realized during the fiscal year ended June 30 from the special taxes imposed by Congress to meet the expenses of the Spanish war.

An American company have obtained a concession from the Government of Venezuela to build a railroad to run at first from Puerto Cabello on the coast, to San Felipe, a distance of 60 miles. The line will eventually be extended to Barinas, a stretch of over 240 miles. It will tap the richest agricultural region of Venezuela, where cocoa, sugar, tobacco and wheat grow in abundance. The concession has been granted for a term of 99 years. Hotchkiss & Wilcox of New York City are the agents of the concessionaires.

It is reported that Western capitalists are planning to construct at Boston a system of docks and elevators for handling grain. A large amount of Detroit capital is said to be engaged in the scheme.

The keel of the largest merchant steamer ever built on the Pacific Coast has just been laid at the yards of the Union Iron Works, San Francisco. The vessel is to be called the "California," and will be 451 feet long and 51 feet beam. She will have a displacement of 12,000 tons, with a carrying capacity of 8250 tons. The "California" will be owned by the American-Hawaiian Steamship Company.

Charles L. Taylor and John M. Fulton of Reno, Nev., have purchased what is claimed to be the largest antimony mine in the United States. It is situated in Humboldt County, Nev., about 70 miles north of Winnemucca.

The present season is one of unexampled activity in the shipbuilding industry of the United States. All the large shipyards are full of work and several concerns are extending their facilities in order to meet the demand for new vessels. Scarcity of material, however, is a matter which is giving considerable trouble to the builders, and it is likely that delays may occur on this account in the finishing of several of the vessels now under construction.

After two years of negotiation a reciprocity arrangement has been concluded between the United States and France, whereby certain articles of French manufacture are admitted into this country at reduced rates of duty, while France gives its minimum tariff on a number of items of American production, including petroleum, cotton, copper, rubber and many kinds of machinery.

The Pennsylvania Railroad Company have decided to establish a pension fund for the benefit of their superannuated employees. It is stated that 70 years has been fixed as the age for compulsory retirement, but employees who have been 30 years in the service of the road, but have not attained that age, will be entitled to the benefit of the fund.

Sixteen of the Powers represented at the International Peace Conference at The Hague have signed the protocols of the arbitration and mediation treaties agreed upon by the delegates. Included in the list are France, Great Britain, Russia and the United States.

The preliminary report of the United States Commissioner of Internal Revenue for the fiscal year ended June 30 last, shows that the receipts from all sources aggregated $273,484,582, which is an increase of more than $1,000,000 over the receipts for the previous fiscal year. This increase practically represents the income from the war revenue tax imposed last year.

The Iron Age.

New York, Thursday, August 10, 1899.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHERS.
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The Demand for the Automobile.

The numerous estimates which have been made of the comparative economy in the use of automobiles of various types and of horse drawn vehicles apparently have resulted, as a rule, in favor of the new means of transportation. Interesting as the facts thus brought out may be, a mere comparison of the cost of the old style of vehicular transportation service with that of self propelled carriages does not go far enough. A central feature of the situation which calls for a new era of development is that the horse drawn vehicles are no longer capable of rendering the service which is required by the exacting conditions of modern life. This is not the first time that the horse—noble and valuable animal though he may be—has had to yield precedence to a stronger force.

There are yet in existence turnpike roads built at the national expense to facilitate travel in stage coaches drawn by horses. But these coaches were retired so long ago in favor of passenger trains that the greater number of travelers to-day through the same districts probably never saw one. There are yet people living in Chicago who can remember when the stocks of goods kept in the stores there arrived in wagons from older and distant commercial centers. Great as has been the growth of the passenger traffic on American railways —and it was chiefly for such traffic that railways were originally projected—the growth of freight carriage has been still greater. The goods wagon which formerly lumbered across broad States, for which a ton was a heavy load, has been superseded by fast trains, some of them composed of steel cars capable of carrying 100,000 pounds. The development in the steam railway field has been duplicated already in the case of street passenger railways, in the substitution for horse cars of electrically driven cars, of greater capacity, run at greater speed, affording the passengers more comfort at a lower cost per mile.

There yet remains the continuation of the parallel of the early railway development to the extent of handling freight in city streets more expeditiously than is possible so long as horses alone are relied upon. Already the idea of trolley cars for hauling freight has been discussed, but the drawback to such a service is that tramways would be necessary, while the nature of the local freight business is such that it cannot be confined to fixed routes, but vehicles must be free to run at large on the highways. It is for this purpose, rather than for the carrying of great numbers of passengers, that some form of motor vehicle seems likely first to come into widespread use. It is not a question of supplanting the customary truck or express wagon with a means for rendering the same service at a lower cost. There has come a demand for a service for the transportation of freights on city streets which the horse is not capable of rendering. The capacity of the horse to draw loads has been increased by the improvement of streets and roads practically to the limit; there must now come a motive power capable of drawing heavier loads, or drawing them at a higher rate of speed, and herein lies the opportunity of the motor car.

The field for the new transportation in streets has been widened by the changed conditions of city life which have led to the growth of suburban populations to such an extent, this being, in turn, a result from the extension of electrical railways, with their more rapid passenger service than the old horse car lines afforded. At the same time the retail trade in many lines has become concentrated in a comparatively few great stores, instead of small stores wherever buyers were to be found. Already the tendency of these large concerns is to place their resources as nearly as possible at the door of every citizen, not only through the prompt delivery of goods actually bought in the stores, but also in the collection of orders from house to house for goods for later delivery. The development of this system is adding continually to the convenience of suburban residence, and nothing seems likely to give it such further impetus as the automobile, with its high rate of speed. There is to be considered also the field for the use of motor cars for deliveries by express companies, general and local, and for expediting the mails.

It is not intended here to disparage the use of the automobile for carrying passengers, either under private ownership or for public hire. Indeed, thus far the principal demand has been for passenger vehicles. But the urban freight traffic is destined to reach a larger volume than the passenger traffic, just as has been the case on the steam railways, and the investigator who fails to take this fact into consideration will find that he has made a mistake. As to what types of vehicles will prevail ultimately, it is too early to say. Many details will have to be studied in their bearing on the subject. For instance, the average Frenchman who owns an automobile seems to do so for the opportuity which it gives him to go touring. Whatever may some time be the case, the storage battery vehicle is not calculated for use in the country districts of France, from the lack of charging stations, and consequently he buys a gas motor vehicle. Doubtless many other reasons will be found to influence various people in using this or that form of vehicle or motive power.

One thing which promises a more healthful condition of the development of the automobile business in America than was seen in the beginnings of the bicycle business is that a better conception appears to prevail of the possibilities in the new field, and it is approached with better provision of capital, business organization and the like. As in the case of so many branches of production, geographical lines seem practically to have been wiped out, so that like customs prevail gradually over a wider and wider portion of the world, rendering a demand for automobiles probable in every continent as soon as their utility has been demonstrated thoroughly in any single country. In earlier days, in the case of street railways, for instance, a long time elapsed after their introduction in America before they became known in many important capitals abroad. Besides, the vehicles which are best adapted for use in any country may be expected to be preferred by its people, without regard to where they are made, which gives the builders of such vehicles in America a chance to share in the export trade in manufactured lines that of late has been taking on such great proportions. The iron and steel trades will be benefited, not only through the large consumption of metal in the construction of the new vehicles, but through the demand for a great variety of mechanical appliances for use in their manufacture.

The Concentration of Ore Interests.

Awake as the iron trade is to changes through which it is now passing, it may be doubted if there is a full realization of the facts as to the present absolute concentration in the mining branch. Of the total output of the current year a quantity not far from equal to the total shipments of two years ago will be by direct furnace consuming interests, seven of them. With the season half gone and with complex problems rising for solution before its close, it is, of course, impossible to determine with anything like accuracy the actual shipments to be made by anybody—shippers themselves would give a good deal to have the question settled—but if these interests do not cover a tonnage of 12,000,000 to 12,500,000 tons it will be surprising. Evidently there is not very much left for the remainder and the independent miner can, in the long run, have little to do with fixing prices. In years of stress his influence is emphasized, but the extra consideration he may then receive is but an incident of the times and can have nothing to do with the argument.

Soon, yes to-day, the iron mining business of the Lake Superior region is in the hands of six or seven concerns. The Oliver and the Minnesota, ore supplies respectively for the Carnegie and the Federal companies, are close together in the lead, with the former to-day in apparently better position for the future, owing to its readiness to take properties, while the latter was resting on its laurels. How they may stand in respect to each other to-morrow there is no telling. By their recent purchases the National Steel Company come third, with an annual output assured, aside from contract ore, of not far from 2,000,000 tons. The Rockefeller Company are not a bad fourth, but with a potential ability, in reserves of unopened ore mines, that will give them much better place when conditions are such that they care to take advantage of them. Next year the American Steel & Wire Company will take their place with ores of their own nearly sufficient for their furnaces and with ships enough to move it all. The Republic Iron & Steel Company are an important factor to-day in the ore trade, though dwarfed by some of their neighbors, but by deals that probably will be announced in a week they will take a more prominent and commanding position with a rare supply of high grade Bessemer soft ore sufficient for years of mining.

Besides these large combinations controlling their own ores a number of mines are so owned that they do not enter the market. There are the valley furnaces supplied in large part by the enormous Mahoning mine, and the Biwabik interests, for instance. Then there are steel makers who in addition to mines they have controlled for years are preparing to enlarge their supplies for the future. The accumulation of manufacturing plants under single management has, perhaps, accelerated the movement toward mines, but it was a tendency under consideration before the combinations and would have come in any event.

It is generally believed in the mining region that the big interests will be for the good of the district. Ore prices are not likely to be chopped into bits as has been the too frequent custom. However near cost these companies may supply ore to themselves, cost need not be pared down to the point where labor and all other interests must suffer. The trade generally looks for a steadier ore market, steadier demand for labor, and a more regular price, with the balance wheel running smoothly and without the jerks that have been too frequently in evidence.

The Use of Molding Machines.

Sensible action was taken at their recent convention at Indianapolis by the Iron Molders' Union of North America. All members were advised to accept work on molding machines and bring out their highest possibilities. This is a recognition of progress which is worthy of American workmen. Instead of fighting improvements in their methods, as short-sighted men have been known to do, the molders may now be relied upon to co-operate in the introduction of labor saving and cost reducing devices. The introduction of molding machinery has been making great progress of late. The rapid growth of large industries, involving the use of castings of the same pattern in greatly increased quantities, has caused foundry managers to study methods of enlarging output without making vast additions to floor space. This has been accomplished by the adoption of molding machines in connection with continuous melting, which has completely revolutionized the time honored customs of the trade in numerous foundries, and will undoubtedly do so in many more in the near future. Such close watch is kept on the movements of competitors that the introduction of such innovations in one establishment is certain to be shortly followed in others making the same class of product. As unskilled workmen can soon be taught how to operate molding machines, it may seem that the Iron Molders' Union have simply bowed to the inevitable in deciding not to oppose their use.

Nevertheless, it must be conceded that the organized molders could create a great deal of trouble and seriously interfere with the smooth operation of machine using foundries if they were decidedly hostile to the introduction of molding machines. They have themselves settled a question which might have proved exceedingly vexatious, and for this they deserve commendation.

The field of application for machinery of this character is gradually but surely extending. It was at first supposed that molding machines were only adapted to a limited range of work, covering castings of quite moderate size, simple in form and not very thin. But success in the lines first followed led to experiments in more difficult patterns and in larger pieces, so that at the present time quite a wide range of work is turned out by these machines. They have not yet been generally introduced in stove foundries. The causes for this were admirably set forth in the paper recently read by Abram C. Mott of Philadelphia before the convention of the National Stove Manufacturers at Cincinnati. He came to the conclusion that unless at least 60 full consecutive days' work could be found for a machine on one pattern it would not be of any economic value whatsoever. His conclusion was controverted by Lazard Kahn of Cincinnati, who instanced certain classes of work in stove molding on which machines could be employed economically. Since then some investigation in this line has been made by stove manufacturers whose interest has been awakened, and it appears quite probable that ere long the stove trade may be able to point to results accomplished in stove plate molding by machinery which had been deemed utterly impracticable by men of the highest technical standing among stove makers. Possibly the general use of molding machines in that trade would have the effect of standardizing many parts in every stove foundry, in order to increase output and reduce cost, which would be a radical departure from existing practice. But as this has been brought about by force of circumstances in other lines, it may eventually take place in the stove trade. The fact seems to be

established, however, and the action of the Iron Molders' Union confirms it, that machine molding is destined to become a more conspicuous feature of general foundry practice.

Railroads Not Building Wooden Bridges.

The absurd report has obtained circulation that the high price of steel is causing Western railroad companies to build wooden bridges. This report has been eagerly seized by writers for the daily press, who hail it as an indication that consumption is being checked, and therefore lower prices of iron and steel are to be expected. If the expectation of lower prices rests upon such a slender foundation as this many days will pass before it is realized. Extended inquiry discloses no cases in which railroad companies have decided to build wooden bridges because of the excessive cost of steel, but a few instances are found of the renewal of decayed wooden trestling for which steel would probably have been substituted had it continued cheap and readily obtainable. The crowded condition of the steel works and great delay in deliveries of bridge material have probably as much if not more to do with the renewal of wooden trestling than the cost.

The best evidence in favor of this view of the question is found in the condition of the bridge works. These establishments are running to their full capacity, many of them working both day and night, having orders which will keep them busy well into the winter if not beyond it. The new contracts now being taken are not so numerous as some time since, and their tonnage does not run up to such high figures, but the placing of orders has not completely stopped.

Engineers are, however, advising their clients who are considering the advisability of replacing old bridges with new and heavier structures not to do so at present, but to repair or strengthen such bridges to make them last until prices are lower or at least until material can be more easily obtained. But they are not advising them to build wooden bridges. If railroad earnings keep up through the coming year as at present, projected improvements will then be undertaken even if prices are no lower than now obtain.

OBITUARY.

JOHN LEWIS MURRAY.

The death is announced of John Lewis Murray, on August 4, in the sanitarium at Canandaigua, N. Y. John L. Murray was born in Oriskany Falls, N. Y., in 1851. When a young man he began business by entering the employ of the First National Bank of Utica as bookkeeper, and later successively occupied the like or a more responsible position in various large companies. In 1883 he entered the firm of Charles Millar & Son, Utica, who, in 1889, began the manufacture of lead pipe, and who were the organizers and principal stockholders of the Utica Pipe Foundry Company. Mr. Murray was made secretary of the organization, which position he held until the time of his death. He was also an organizer and director of the Sauquoit Canning Company and of the Utica Paving Company, having been secretary and treasurer of the latter company up to January last. Mr. Murray's illness dates from May, 1898, and is directly attributable to overwork and a life of strained mental activity.

WILLIAM P. TATHAM.

William P. Tatham of Philadelphia, a member of the firm of Tatham Brothers, lead pipe manufacturers, died at his summer residence at Atlantic City, on Saturday, aged 80 years. William P. Tatham was born in Philadelphia, and very soon after attaining his majority engaged in the manufacture of lead in various forms, with his four brothers. In 1867 they built their present works, at Fifth and Locust streets. The firm owned Windmill Island, and had a smelting works there previous to the removal of the island by the Government. For a number of years he was president of Franklin Institute.

WILLIAM B. PARKES.

William B. Parkes, for many years superintendent of the rolling mills at Bay View, Milwaukee, now owned by the Illinois Steel Company, died at Milwaukee on the 4th inst. He was 61 years old. He was born in Saugerties, N. Y., and removed to the West when he was 31 years of age, residing in Chicago for five years, after which he became a resident of Milwaukee. He retired from business some years since. He leaves a widow and six children, one of whom is the wife of S. J. Leewellyn, secretary of the Republic Iron & Steel Company.

ROBERT BARBER.

Robert Barber, a well-known citizen of Toledo, Ohio, died at his home in that city on July 30, after an illness of many months, in his seventy-second year. Robert Barber was born in Wellsville, Ohio, in 1827. When a young man he entered the employ of the old Smith Bridge Company, Toledo, who some years ago lost their identity in the Toledo Bridge Company. Mr. Barber started in with the company and began as a common laborer. He was steadily advanced to the superintendency of the plant, and then to the vice-presidency, which he held for many years, retiring from active business life some seven or eight years ago. He was a heavy stockholder in the Smith Bridge Company. At the time of his death he was a stockholder in the National Bank of Commerce, the East Side Banking Company, the Toledo Metal Wheel Company, the Southeast Toledo Can Company and other industrial and commercial enterprises of Toledo, his investments having been made in that city, in whose future he was always a firm believer.

PERSONAL.

John W. Garland of the Garland Chain Company, Rankin Station, Pa., sailed for Europe last week on a business trip.

H. W. Hartman of the Hartman Mfg. Company of Ellwood City, Pa., and other interests, has sailed for Europe.

John Z. Speer, formerly president of the Shoenberger Steel Company, Pittsburgh, Pa., has sailed for Europe.

E. F. Austin and A. E. Manchester have formed a partnership under the name of Austin & Manchester as consulting and supervising engineers, with offices in 203 Smith Block, Sixtieth and Liberty streets, Pittsburgh. The firm will make a specialty of supervising the erection of steam and power plants and air and gas compression plants.

The senior prize offered by the council of the British Society of Mining Students for the best paper on "Electricity as Applied to Mining Engineering," has been awarded to W. S. Gresley, mining engineer, of Erie, Pa., who is an honorary member of that institute.

G. E. Macklin, formerly special agent of the Pressed Steel Car Company, Pittsburgh, has been promoted to the office of assistant general sales agent, with headquarters in the Empire Building, Broadway, New York.

Cyrus Robinson, formerly of the E. P. Allis Company, Milwaukee, Wis., has accepted the position of chief engineer of the Corliss engine department of the Westinghouse Machine Company, at East Pittsburgh, Pa.

Among the candidates to membership of the Iron and Steel Institute at the Manchester meeting are Frank Baackes of the American Steel & Wire Company, James Douglas of Phelps, Dodge & Co. and S. G. Flagg, Jr., of Philadelphia.

Paul De Sincay, managing director of the Vieille Montagne Zinc Company, is now in this country.

The Board of Directors of the Seventh National Bank of New York have passed resolutions expressing regret on the retirement, on account of ill health, of Col. John McAnerney, who was its president since 1891. Colonel McAnerney was for many years connected with the iron trade of New York. He proposes to spend a few weeks in the Virginia mountains, and may then go to Europe.

W. L. Brown of Pickands, Brown & Co., Chicago, and president of the American Shipbuilding Company, owners of the leading shipyards on the Great Lakes, will leave for Europe on the 26th inst., to be absent two months. He will visit a number of the prominent European shipyards.

The Virginia Iron, Coal & Coke Company of Bristol, Tenn., have completed 300 coke ovens at Tom's Creek, and foundations are being laid for 200 more. At Looney Creek the preparatory work for 300 ovens is being done.

Pig Iron Production and Consumption Approaching a Balance.

There has been a further increase in the production of pig iron during July, but it has not been as great as expected, because a number of active furnaces were forced to go out for repairs and because the preparations for resumption on the part of other stacks have been lagging. Stocks have been further reduced, as will be observed, but the total available is now so small that it is of little service. In some quarters, however, we observe the first indications of a modest increase in the stocks carried.

The weekly capacity of the furnaces in blast on August 1 compares as follows with that of preceding periods :

	Furnaces in blast.	Capacity per week. Gross tons.
August 1, 1899	244	267,672
July 1	237	263,363
June 1	220	254,062
May 1	217	250,095
April 1	205	245,746
March 1	192	228,195
February 1	195	237,639
January 1	200	243,516
December 1, 1898	195	235,528
November 1	196	228,935
October 1	192	215,635
September 1	186	213,043
August 1	187	206,777
July 1	185	216,311
June 1	190	225,398
May 1	194	234,163
April 1	194	233,339
March 1	193	234,430
February 1	184	228,338
January 1	188	226,608
December 1, 1897	191	226,024
November 1	183	213,159
October 1	171	200,128
September 1	161	185,506
August 1	152	165,378
July 1	145	164,064
June 1	146	168,380
May 1	146	170,528
April 1	153	173,279
March 1	156	169,986

The status of the charcoal furnaces was as follows:

Charcoal Furnaces in Blast August 1, 1899.

Location of furnaces.	Total No. of stacks.	No in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England	11	2	185	9	805
New York	2	2	195	0	0
Pennsylvania	13	2	108	11	550
Maryland	4	0	0	4	569
Virginia	4	0	0	4	437
Ohio	8	2	129	6	420
Kentucky	3	0	0	3	200
Tennessee	5	3	893	2	410
Georgia	3	1	375	2	300
Alabama	7	2	685	5	950
Michigan, Missouri and Wisconsin	15	7	3,456	8	3,393
Texas	4	1	163	3	750
Utah	1	0	0	1	175
Oregon	1	0	0	1	275
Totals	81	22	6,189	59	9,234

As compared with previous months the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
August 1, 1899	22	6,189
July 1	20	6,018
June 1	16	4,943
May 1	20	4,846
April 1	17	4,777
March 1	16	4,330
February 1	17	4,967
January 1	20	6,026
December 1, 1898	18	6,018
November 1	20	5,947
October 1	20	5,732
September 1	21	6,298
August 1	22	6,459
July 1	19	5,647
June 1	20	6,762
May 1	18	6,571
April 1	16	5,716
March 1	16	5,470
February 1	14	4,734
January 1	16	5,442
December 1, 1897	19	5,061
November 1	19	4,656
October 1	20	4,636
September 1	21	4,555
August 1	20	4,003
July 1	14	2,894
June 1	15	3,321
May 1	13	3,729
April 1	16	5,368
March 1	18	5,425

The status of the coke and anthracite furnaces was as follows:

Coke and Anthracite Furnaces in Blast August 1.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York	13	4	4,975	9	6,150
New Jersey	3	3	2,103	0	0
Spiegel	3	3	285	0	0
Pennsylvania:					
Lehigh Valley	27	15	8,367	12	4,825
Spiegel	1	0	0	1	90
Schuylkill Valley	14	9	5,524	5	4,597
Upper Susquehanna	5	4	3,634	1	600
Lower Susquehanna	10	6	4,874	4	1,286
Lebanon Valley	11	10	7,145	1	534
Spiegel	1	1	300	0	0
Pittsburgh District	29	28	60,091	1	2,450
Spiegel	1	1	1,006	0	0
Shenango Valley	16	15	21,676	1	1,000
Western Pennsylvania	19	11	13,013	8	4,183
Spiegel	1	1	810	0	0
Maryland	5	3	5,700	2	1,850
Wheeling District	10	9	12,032	1	1,400
Ohio:					
Mahoning Valley	13	11	18,365	2	1,790
Central and Northern	11	10	15,006	1	2,600
Hocking Valley	3	1	400	2	703
Hanging Rock	11	8	4,649	3	790
Illinois	16	15	27,378	1	700
Spiegel	1	1	561	0	0
Minnesota	1	0	0	1	629
Wisconsin	4	4	3,639	0	0
Missouri	2	1	950	1	600
Colorado	3	2	2,850	1	800
The South:					
Virginia	20	10	6,282	10	6,936
Kentucky	5	5	2,658	0	0
Alabama	30	20	19,007	10	7,810
Tennessee	12	10	7,603	2	950
Georgia	2	0	0	2	960
North Carolina	2	1	600	1	400
Totals	305	222	261,483	83	54,633

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
August 1, 1899	222	261,483
July 1	217	257,346
June 1	204	249,119
May 1	197	245,249
April 1	188	240,969
March 1	175	223 865
February 1	178	232,672
January 1, 1899	180	237,490
December 1, 1898	177	229,510
November 1	176	222,988
October 1	172	209,903
September 1	165	206,759
August 1	165	200,318
July 1	166	210,664
June 1	170	218,636
May 1	176	227,592
April 1	178	227,623
March 1	177	228,960
February 1	170	223,604
January 1, 1898	172	221,166
December 1, 1897	172	220,962
November 1	164	208,503
October 1	151	195.492
September 1	140	180,951
August 1	132	161,375
July 1	131	161,170
June 1	131	165.059
May 1	133	166,799

During July the following furnaces blew in: Franklin, in New Jersey; Henry Clay, in the Schuylkill Valley; Allentown Iron Works, in the Lehigh Valley; one Paxton, on the Lower Susquehanna; one North Branch, on the Upper Susquehanna; one Sparrow's Point, in Maryland; one Lorain, in the Cleveland district; one New York, in the Hocking Valley; Calumet and one Joliet, in the Chicago district. The following furnaces have been blown out for repairs: Keystone, in the Schuylkill Valley; Buena Vista, in Virginia; Top Mill, in Wheeling; Bessie, in the Hocking Valley; one Wellston, in the Hanging Rock region; Clifton and No. 2 Sloss, in Alabama.

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on August 1, the same furnaces being represented as in former months. This does not include the holdings of the Steel works producing their own Iron:

Stocks.	Mar. 1.	April 1.	May 1.	June 1.	July 1.	Aug. 1.
Anthracite and Coke	328,987	229,907	205,125	167.587	114,788	107,270
Charcoal	98,094	82,056	79,002	65,643	54,547	42,998
Totals	427,081	311,968	284,127	233,235	169,335	150.268

Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant Iron:

Stocks.	Mar. 1.	Apr. 1.	May 1.	June 1.	July 1.	Aug. 1.
Coke and Anthracite	95,000	82,700	60,700	46,900	33,900	26,800
Charcoal	31,300	27,000	25,800	20,400	16,900	15,700
Totals	126,300	109,700	86,500	67,300	50,800	42,500

The Brooklyn Navy Yard Contract.

WASHINGTON, August 8, 1899.—The Navy Department to-day opened bids for a new power plant for the New York Navy Yard and for a series of cranes to be erected in the machine shop. Ten of the leading firms of the country put in bids, though only three proposed to construct the power plant, the other bidders confining their proposals to the electric cranes. The specifications provide that the Government shall furnish the building 80 x 100 feet and a stack 150 feet high. The boilers to be supplied by the contractor are three in number, aggregating 1200 horse-power, each boiler to have a total of not less than 4000 square feet of heating surface, and not less than 80 square feet of grate surface. Three engines are provided, each directly connected to a 400 kw. alternating generator, the engines to be of the vertical cross compound and condensing type, arranged for operating at 133 revolutions per minute. The motors must supply a horse-power of about 1800 with such distribution as the Government may choose to specify. All motors to be of the alternating current type, operating from a two-phase current at 200 to 220 volts and 3000 alternations per minute. To supply the Department with the above described plant complete there were three bidders, each submitting a series of bids conditioned upon the details of the plant to be supplied, as follows:

The United Company, New York, eight bids ranging from $184,640 to $189,740.

The Westinghouse Electrical & Mfg. Company of Pittsburgh, 40 bids, ranging from $149,800 to $175,900.

The Bullock Electric Company, New York (a), $187,953; (b), $189,157.

Items 2, 3, 4 and 5 in the proposals opened to-day were as follows:

Item 2. One four-motor electric traveling crane, complete in all parts, with conductors and insulating support, having a maximum working capacity of 40 tons, with a span 70 feet from center to center of the runway tracks and a runway of 347 feet.

Item 3. One three-motor electric traveling crane, complete, with the maximum working capacity of 25 tons, span of 70 feet and runway of 338 feet.

Item 4. Two three-motor electric traveling cranes, complete, with maximum working capacity of 10 tons, span of 67 feet 4 inches and runway of 347 feet.

Item 5. Two three-motor electric traveling cranes, complete, with maximum working capacity of 10 tons, span of 67 feet 4 inches and runway of 338 feet.

The bidders were as follows:

William Sellers & Co., Philadelphia: Item 2, $11,290; 3, $8160; 4, $12,100; 5, $12,100.

Manning, Maxwell & Moore, New York: Item 2 (a), $14,117; (b), $17,443; 3 (a), $9442; (b), $11,627; (a), $11,926; (b), $15,919; 5 (a), $11,926; (b), $15,919.

Brown Hoisting & Conveying Machinery Company, Cleveland, Ohio: Item 2, $13,886; 3, $9170; 4, $11,580; 5, $11,580.

Morgan Engineering Company, Alliance, Ohio: Item 2 (a), $14,430; (b), $11,130; 3 (a), $8405; (b), $6930; 4 (a), $13,860; (b), $9860; 5 (a), $13,860; (b), $9860.

Niles Tool Works, New York: Item 2 (a), $10,970; (b), $11,130; (c), $11,410; 3 (a), $7195; (b), $7379; (c), $7616; 4 (a), $9880; (b), $10,133; (c), $10,454; 5 (a), $9860; (b), $10,112; (c), $10,434.

Pawling & Harnischfeger, Milwaukee, Wis.: Item 2, $10,500; 3, $7500; 4, $8800; 5, $8800. W. L. C.

Hardening Iron and Steel.

The American Carburizing Company of 160 Pearl street, New York, are introducing what is termed their "carburizer" for hardening iron or steel. This material is particularly adapted for hardening iron, no matter what the chemical composition may be. Soft steel, malleable iron and the like can be hardened so as to resist the file. A drill made out of the commonest iron was treated by this process for 25 minutes, when it left the fire so hard that, although a 1-inch plate was bored, no impression was made on the drill. The articles to be hardened are placed in an iron box, the bottom of which is covered with the hardening material to a depth of about 1 inch. The articles are well imbedded in the material and the whole covered with a plate. The box is then placed in a furnace and subjected to a uniform heat of not less than 800 degrees for from 20 minutes to three or four hours, according to the quantity and size of the articles and depth of hardening required. Afterward the articles are plunged into cold water. It is stated that the penetration is deeper and is done in considerably less time than with other similar substances. There is no corrosion during the process, and the article leaves the fire as clean as when put in. It is claimed to be more economical than granulated bone or burnt leather, being of lighter weight and being capable of more extended use.

MANUFACTURING.

Iron and Steel.

At a recent meeting of the Niles Boiler Company, Niles, Ohio, R. G. Sykes was elected president and John E. McVey vice-president, D. J. Finney secretary and treasurer and J. H. Orwig general manager. The capital stock of the concern has been increased from $25,000 to $50,000.

The Continental Iron Company, which concern are operating the plant of the Wheatland Rolling Mill, at Wheatland, Pa., and the Coleman-Shields Company, at Niles, Ohio, have been granted a charter of incorporation, with a capital stock of $200,000. Henry B. Shields is president; S. S. Shields, vice-president, and J. B. Shields, secretary and treasurer.

The plant of the Pittsburgh Sheet Mfg. Company, at Shousetown, Pa., which has been referred to in these columns before, was started up on Monday night, July 31. Work on the building of the plant was commenced in August, 1896. The firm are operating two finishing and one roughing and one cold mill, and expect in about six weeks to have double this number in operation. The concern advise us they have contracts booked which will insure steady employment of their capacity for several months. They will manufacture soft charcoal iron sheets, black, galvanized or pickled, and cold rolled. The officers are W. L. Washington, chairman; R. A. Wilson, president and general manager; Lewis W. Washington, vice-president and secretary, and A. C. Warne, treasurer. E. H. Stroud & Co. of 36 La Salle street, Chicago, and 100 William street, New York, are sales agents for the concern.

The Chicago Malleable Castings Company have purchased 7½ acres of land at West Pullman, Ill., and placed contracts for the erection of large works, which they hope to have in operation some time in September. This is the company which will be managed by John T. Llewellyn, until lately in charge of the Belle City Malleable Iron Company, Racine, Wis.

A petition will be presented to court at Mercer, Pa., on September 4 asking for a decree to dissolve the Buhl Steel Company, at Sharon, Pa., taken over by the National Steel Company.

The South Chester Tube Mill of Chester, Pa., will make application for a charter. Plans for the buildings are now under way and two of them will be over 400 feet long. This concern propose to engage in the manufacture of pipes and tubes on a large scale. Identified with the new interest is Wm. S. McManus, formerly of the Chester Pipe & Tube Company of Chester Pa.

The Massillon Iron & Steel Company have been incorporated with a capital stock of $150,000, and will erect a plant in Massillon, Ohio, for the manufacture of iron and steel sheets. The Massillon Board of Trade subscribed for $50,000 worth of stock and granted a site valued at $4000.

Hecla Furnace of the Hecla Iron & Mining Company, at Hecla P. O., near Ironton, Ohio, which has been idle for some time, will be started up probably this week.

The joint partnership of the Sharon Iron Company, Limited, at Sharon, Pa., has been dissolved by a vote of all the stockholders, and T. D. Buhl, Detroit; F. H. Buhl and David Adams of Sharon have been appointed liquidating trustees. The plant of this concern has been taken over by the Republic Iron & Steel Company.

The Bloom Furnace, at Bloom Switch, Ohio, which was blown out for repairs, is to be blown in on August 14.

The Juniata Furnace, at Newport, Pa., was blown in on August 3.

The furnace of the Allentown Iron Works, Allentown, Pa., went in blast on August 1.

A plant for the manufacture of wire and wire products is being erected at Cuyahoga Falls, Ohio. E. A. Henry of Braddock, Pa., is interested in the new enterprise.

Machinery.

The Weimer Machine Works Company of Lebanon, Pa., are now installing at the furnace plant of the Stewart Iron Company, Limited, Sharon, Pa., one of their 50 x 96 x 60 inch blowing engines. The Stewart Iron Company have another engine of the same size ordered from the Weimer Company, which will be installed within the next few months. The fly wheels on the engines each weigh 30 tons and are 22 feet in diameter. The total weight of each engine will be about 350,000 pounds. The Weimer Machine Works Company are also building for the Spearman Iron Company of Sharpsville, Pa., and the Salem Iron Company of Leetonia, Ohio, engines of the same size as the engines of the Stewart Iron Company. They are also building for the Globe Iron Company, Jackson, Ohio, an engine 42 x 84 x 60 inch, and three engines, 18 x 48 x 30 inch, for the United States Navy Yards at the following places: Norfolk, Va.; Boston, Mass., and Portsmouth, N. H. These engines are duplicates of the engine placed at the Washington, D. C., Navy Yard a few months ago by the Weimer Company. The following foreign shipments of their patent cinder cars have been made, or will soon be made: To the Aachener Hutten Actien Verein Rothe Erde, Germany, five cars; to the Millom Askam Hematite Iron Company, Millom, England, seven cars; the M. Pavoloff,

Sulin, Russia, four cars. Their export business is monthly increasing. The company report business good and that they have installed lately additional machinery and enlarged their plants in order to meet increasing business.

The Standard Ice Mfg. Company of Pittsburgh have let a contract to the York Mfg. Company, York, Pa., for the machinery for their new ice plant to be erected in Pittsburgh. The contract for the building, which will be a large one, has not yet been placed.

The Bass Foundry & Machine Company, at Fort Wayne, Ind., have recently taken a large number of contracts for engines. To the Pittsburgh Steel Hoop Company of Glassport, Pa., they sold eight 72 inch by 18 feet high pressure horizontal tubular boilers, one 24 x 36 inch, one 16 x 30 inch and one 32 x 54 inch Corliss engines; to the Atlantic Tube Company, Beaver Falls, Pa., one 24 x 48 inch heavy rolling mill engine with gears complete, one 12 x 36 inch engine, one 600 horse-power heater and four 72 inch by 18 feet boilers. The W. Dewees Wood Company, McKeesport, Pa., will install a 30 x 48 inch heavy rolling mill engine with gears for their sheet mills. The Whitaker Iron Company, Wheeling, W. Va., have arranged for a 32 x 54 inch engine of the same type and for the same purpose. The Tyler Tube & Pipe Company, Washington, Pa., will install a 24 x 48 inch rolling mill engine, while the Falcon Iron & Nail Company, Niles, Ohio, will put in a 32 x 60 inch rolling mill engine with gears complete.

Wickes Bros., Saginaw, Mich., made a great many large sales of boilers, boiler shop tools and saw mill machinery in July, a particularly interesting transaction being the sale of a set of large plate bending rolls to Sotter Bros., Pottstown, Pa. Business is exceedingly good, most of the orders now received coming in without solicitation. They find that delivery is getting to be a much more serious question than price, customers being anxious to get what they want quickly.

Dietz, Schumacher & Boyd, Buck street and Queen City avenue, Cincinnati, Ohio, have completed the new addition and have installed therein all new machine tools. A new tool recently put in is a Gray planer, with a bed 31 feet 9 inches long and a 48-inch head. This planer, it is claimed, is longer by 1 foot 9 inches than any other similar tool in the United States. The company's shipments of lathes and other machine tools abroad continue large.

The Sebastian Lathe Company, Cincinnati, Ohio, report the demand for the smaller lathes of which they make a specialty still at high water mark, a recent order from one Chicago firm being booked for 13 of them in various sizes. A number of new machine tools have been added to the company's plant, among which is mentioned one of the Gray Planer Company's largest sized planers.

Wm. F. Rudge of Youngstown, Ohio, has bought a half interest in the Forsythe Scale Works, in that city. It is understood that the plant of this concern will be materially improved and enlarged, work on which will be commenced at once.

The Mica Machine Company of Pittsburgh have been granted a charter of incorporation. The concern will erect a plant to manufacture machinery for splitting mica for electrical and other work.

Work is being pushed on the new buildings of the Riter-Conley Mfg. Company, in lower Allegheny, Pa., to replace those destroyed by fire some time since. There will be a structural department 110 x 418 feet, a store building 31 x 138 feet, three stories high, both of these buildings being of steel construction, and there will also be a power building of brick, 40 x 165 feet. The Riter-Conley Mfg. Company are full of work and have more orders than ever before in their history. They are doing work in nearly all parts of the world.

The Des Moines Bridge & Iron Works, under the management of E. W. Creilin, engineer, are erecting a fitting shop at Des Moines, Iowa. The main building will be 94 x 100 feet, of brick and steel construction, so as to be absolutely fire proof, and will be equipped with traveling cranes and modern machinery for punching, shearing, riveting, &c. A foundry will be added in the course of time.

Potter & Johnston Company, manufacturers of shapers, automatic chucking and turning machines, and manufacturing turret lathes, expect to occupy their new shop, at Pawtucket, R. I., in September. The building is rapidly approaching completion and will be a large modern machine shop. That part of it which will be devoted to offices, drafting rooms, &c., will be two stories in hight; the main shop will be one story.

A. & T. McKenna, one of the oldest firms of brass founders in Pittsburgh, have purchased a property 160 feet on the west of Ross street, 84 feet on Water street and 84 feet on First avenue, on which they will build a six-story brick factory, 84 feet square. The building will not be ready for occupancy until early next summer.

The Harris Automatic Press Company, at Niles, Ohio, manufacturers of high speed automatic printing presses, have sold the foreign patents on the Harris press to English capitalists, the terms of the sale being private.

Contracts are to be let for two buildings, one 125 x 100 feet and the other 100 x 60 feet, for the new plant of the Heine Safety Boiler Company, at Phœnixville, Pa.

Hardware.

Fulton Iron & Engine Works, Detroit, Mich., advise us that orders for tire upsetters and benders have been so large that they are crowded a little beyond their capacity in this department.

Coleman Hardware Company, 59 Dearborn street, Chicago, and Morris, Ill., have recently built an addition, 100 x 55 feet, to their foundry: also one to their machine shop, 80 x 42 feet. Both of these additions have been fully equipped with new machinery.

The Russell Jennings Mfg. Company, Deep River, Conn., advise us that their sales thus far this year show a handsome increase over those of the same period of 1898. They are making preparations to meet a large fall trade.

Saginaw Mfg. Company, Saginaw, Mich., report themselves very busy in all departments, and in order to increase their capacity have made a number of improvements in plant during the past few months.

A. W. Dudley & Co. have moved to larger and more convenient quarters at 1211 Pine street, St. Louis. They manufacture special machinery, dies and tools, and advise that orders for experimental work are active.

Avery Stamping Company, Cleveland, Ohio, refer to their general trade as good, orders coming in quite freely. They remark that while they have advanced the prices of some goods, the increase in price has represented only the actual advance they have been obliged to pay for raw materials, &c., their aim being to keep their prices low, but turning out first-class work. They are in shape to do all kinds of heavy pressed steel work, hydraulic forgings, such as collars, bushings, rings, sleeves, seamless vessels, bottles for holding compressed air, gas, &c., cream separator bowls, at any pressure; also special shapes in steel, both in light and heavy work. While there is a limit to sizes of this work they can handle, they are in a position to do very large heavy work, and should be pleased to receive specifications from interested parties.

The Despatch Brass Hardware & Rolling Mill Company, Despatch, N. Y., have been incorporated with a capital stock of $150,000. The incorporators are Peter S. Fletcher, Martha A. Fletcher and William Fletcher. The Messrs. Fletcher have been engaged in the brass hardware business for about 25 years. The business of the new company will not be confined strictly to brass hardware, but they will also make tin packing cans of a new design and a wide line of brass ware. One of the articles that will be manufactured is the Ffaudler, Mallett & Hill lamp. The company state that they have already booked a number of large orders for their products and are running full time. They are commencing operations under what are regarded as flattering auspices.

Miscellaneous.

The Pressed Steel Car Company of Pittsburgh shipped last week 100 steel cars to the Dominion Coal Company of Canada.

The Harrison Safety Boiler Works of Germantown Junction, Pa., report the following recent sales of the Cochrane feed water heaters and purifiers: Bethlehem (Pa.) Steel Company, 12,000 horse-power; Pennsylvania Mfg., Light & Power Company, Philadelphia, 3000 horse-power; Waterbury Rope Company, New York, 850 horse-power; Durham Iron Works, Riegelsville, Pa., 600 horse-power; E. P. Allis Company, Milwaukee, Wis., 200 horse-power; American Nut & Bolt Works, Cleveland, Ohio, 350 horse-power; People's Independent Rice Mill Company, Crowley, La., 350 horse-power; International Paper Company, Franklin Falls, N. H., 350 horse-power; Providence Machine Company, Providence, R. I., 250 horse-power; Lorain (Ohio) Street Railway Company, 850 horse-power; Warden Power Building, Philadelphia, 1000 horse-power. And the following sales of Cochrane separators: Bellefonte (Pa.) Furnace Company, 10-inch; United States Navy Yard, Bremerton, Wash., 4½-inch; Pressed Steel Car Company, McKee's Rocks, Pa., two 3-inch, two 5-inch, three 6-inch, two 7-inch; Benj. Atha & Illingsworth Company, Newark, N. J., 7-inch; Howe-Brown & Co., Pittsburgh, 10-inch; Norfolk Navy Yard, Portsmouth, Va., two 4-inch; Waterbury Rope Company, New York, 6-inch; Schlusselburg Calico Printing Company, St. Petersburg, Rusia, 8-inch; Illinois Steel Company, Joliet, Ill., 22-inch vacuum oil; Pittsburgh Valve & Machine Company, Latrobe, Pa., 3-inch; Fabrica de Hielo, Manila, Philippines, 8-inch; Page Woven Wire Fence Company, Monessen, Pa., special 7-inch; Carbondale (Pa.) Machine Company, two 1½-inch ammonia and 3-inch.

The Best Wire Fence Company of Detroit have been incorporated for the manufacture of wire fences, with a capital of $40,000. The incorporators are C. F. Farrar, A. A. Mann, A. F. Schmeltz and L. H. Foster.

The Carnegie Steel Company, Limited, have awarded to Gillespie Brothers a contract amounting to about $300,000 for grading and paving the streets of East Homestead from the Homestead line to Munhall. The contract involves the removal of about 300,000 yards of earth, and about 200,000 feet of paving. The grading contract includes the leveling of the hills back of the library and the works, and the filling in of the hollows near the works. This work done, the company will erect several hundred houses to be sold to the men employed at the Homestead Steel Works.

The Iron and Metal Trades.

Our monthly blast furnace statistics again show a more moderate increase in output than there was reason to expect, the growth in capacity being from 257,345 tons weekly of Coke and Anthracite Iron on July 1 to 261,483 tons weekly on August 1, an increase of 4138 tons, or say 17,000 tons a month. The furnace stocks have declined 7500 tons and the warrant stocks 7100 tons, a total of 14,600 tons, so that the balance of production and consumption would seem to be pretty close now, if it were not for the consideration that consumption has been actually hampered by the scarcity of Pig Iron.

A considerable number of furnaces are being prepared for work, but to judge from the experience of some who did start prematurely that is an unwise course. There is a good deal of banking to await raw materials, and some experienced furnacemen now wisely wait with their start until they have a stock of material on hand.

A comparison is instructive between the capacity at work on August 1, 1899, and on the corresponding date of last year. In the East and in Central Pennsylvania there were running on August 1, 1898, 38 furnaces, producing weekly 32,557 tons. In the beginning of this month there were active in the same districts 58 furnaces, producing weekly 42,907 tons. In the Central West, including Western Pennsylvania, Wheeling, the Valleys, Cleveland, Illinois and Northwest there were at work 83 furnaces, with a productive capacity of 140,539 tons per week, while now 118 are working, making 176,126 tons weekly. In the South the increase during the year has been from 34 furnaces, making 27,222 tons of Iron, to 46 stacks, turning out 36,140 tons per week.

Both the East and the South are still expanding. The West is up to its limit, the only additions possible being the new stacks approaching completion at Lorain, Youngstown and Pittsburgh.

Buying for delivery during the first half of 1900 is decidedly expanding in the Pig Iron trade, and evidence is accumulating that the business is being done on the basis of present prices to a very considerable extent. In some sections and in some cases prices are guaranteed by the seller. In some the buyer may have closed with some mental reservation as to deliveries if a drop should come, but in a good many instances the transactions are *bona fide* and binding.

In Foundry Iron large sales have been made in Chicago, Buffalo and at other points, largely for 1900 delivery. There have also been resales of warrant Iron for immediate delivery, that being the only means to secure Iron at once. We understand that about 10,000 tons have been placed in this manner.

From Pittsburgh comes the report of the sale of about 30,000 tons of Bessemer Pig for the first half of 1900 at the record breaking price of $21.50, at Valley furnace.

Steel is very quiet, but a good run of orders is still coming up in the line of finished materials.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Aug. 9, 1899.	Aug. 2, 1899.	July 12, 1899.	Aug. 10, 1898.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	**$20.50**	$20.25	$19.50	$10.25
Foundry Pig, No. 2, Southern, Cincinnati	**18.25**	18.00	17.75	9.25
Foundry Pig, No. 2, Local, Chicago	**20.00**	20.00	18.50	11.00
Bessemer Pig, Pittsburgh	**21.25**	21.25	20.75	10.25
Gray Forge, Pittsburgh	**17.75**	17.75	17.50	9.00
Lake Superior Charcoal, Chicago	**22 00**	22.00	21.50	11.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	**34 50**	34.00	33.00	15.25
Steel Billets, Philadelphia	**36.00**	36.00	34.50	17.00
Steel Billets, Chicago	36.80	36.80	.....	16.00
Wire Rods, Pittsburgh	44.00	43.00	.....	.....
Steel Rails, Heavy, Eastern Mill	**30.00**	30.00	28.00	18.00
Spikes, Tidewater	**2.15**	2.00	1.90	1.40
Splice Bars, Tidewater	**1.95**	1.90	1.80	1.05
OLD MATERIAL:				
O. Steel Rails, Chicago	15.00	15.50	15.00	8.25
O. Steel Rails, Philadelphia	**17.00**	17.00	16.00	9.75
O. Iron Rails, Chicago	**20.00**	19.00	18.50	12.00
O. Iron Rails, Philadelphia	**21.00**	21.00	20.00	12.00
O. Car Wheels, Chicago	15.50	15.50	15.50	11.50
O. Car Wheels, Philadelphia	**17.00**	17.00	16.00	9.75
Heavy Steel Scrap, Chicago	**14.00**	13.50	13.00	8.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	2.00	2.00	2.00	1.00
Common Iron Bars, Youngstown	1.85	1.85	1.85	0.95
Steel Bars, Tidewater	**2.20**	2.20	2.10	1.05
Steel Bars, Pittsburgh	**2.10**	2.00	2.00	0.90
Tank Plates, Tidewater	**2.70**	2.70	2.60	1.25
Tank Plates, Pittsburgh	**2.50**	2.50	2.40	1.10
Beams, Tidewater	2 15	2.15	2.15	1.40
Beams, Pittsburgh	2.00	2.00	2.00	1.25
Angles, Tidewater	2.15	2.15	2.15	1.20
Angles, Pittsburgh	2.00	2.00	2.00	1.05
Skelp, Grooved Iron, Pittsburgh	**2.25**	2.25	2.15	1.05
Skelp, Sheared Iron, Pittsburgh	**2.60**	2.60	2.35	1.10
Sheets, No. 27, Chicago	**3.18**	3.18	3.05	2.00
Sheets, No. 27, Pittsburgh	3.00	3.00	3.00	1.85
Barb Wire, f.o.b. Pittsburgh	**3.10**	3.10	2.95	1.65
Wire Nails, f.o.b. Pittsburgh	**2.50**	2.50	2.35	1.30
Cut Nails, Mill	**2.20**	2.20	2.05	1.05
METALS:				
Copper, New York	**18.50**	18.50	18.25	11.75
Spelter, St. Louis	*5.75*	5.50	5.90	4.25
Lead, New York	*4.50*	4.55	4.55	4.00
Lead, St. Louis	*4.47½*	4.55	4.75	3.90
Tin, New York	**32.25**	32.00	27.87½	16.35
Antimony, Hallett, New York	*9.75*	9.75	10.00	9.00
Nickel, New York	*36.00*	36.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	4 55	4.55	.....	2.80

Chicago. (*By Telegraph.*)

Office of *The Iron Age*, 805 Fisher Building.
CHICAGO, August 9, 1899.

Trade presents the same characteristics which have prevailed for some time, with more activity in Pig Iron and advanced prices in some classes of Finished Iron and Steel. A greater tendency is manifested by consumers to place orders for future delivery. Great difficulty is still experienced in getting deliveries on old contracts, and much more business could be done if material was available. High prices are not checking the demand, but activity appears to be increasing in all lines of manufactures. The lake shipbuilding interests are being crowded to their utmost capacity, the leading shipyards having all they can do in the way of new work to be ready for the opening of navigation next year. Western railroads are looking forward to another year of enormous traffic, as the corn crop is now practically assured.

An illustration of the special conditions now prevailing in the Steel trade is afforded by the experience last week of one of the large manufacturers of Structural Shapes. A stock list was issued, showing the number of pieces on hand of each size and weight. Not a standard size appeared in the list, all being sizes or weights not frequently in demand. The lengths were also irregular. Accompanying the stock list was a statement that immediate shipment would be made to any one desiring any part of it at ¼c. per pound advance on quotations for mill shipment. The total quantity was a little under 2000 tons. Inside of 24 hours after the list was issued everything on it was sold.

Pig Iron.— The past week was one of the best of the year in point of tonnage placed. The demand seems to increase rather than diminish. Large sales of Northern and Southern Iron have been made for deliveries running far into next year, but more tonnage has been refused by some houses than they booked. Inquiries are coming from all classes of consumers. Strong pressure is being placed on furnace companies for more rapid deliveries on contracts. Consumers are seeking more Iron for early delivery, but little is available. The only Iron that can be had for early delivery is when furnaces make an off grade, and it is sold as quickly as offered. One Southern company notified agents here to take orders for the last quarter of the year, and in three days the product was

completely sold up. The outlook favors still higher prices, as the supply is undoubtedly short of the requirements of the trade. We quote for cash as follows:

Lake Superior Charcoal	$22.00 to $23.00
Local Coke Foundry, No. 1	20.50 to 21.00
Local Coke Foundry, No. 2	20.00 to 20.50
Local Coke Foundry, No. 3	19.50 to 20.00
Local Scotch, No. 1	21.00 to 21.50
Ohio Strong Softeners, No. 1	22.00 to 22.50
Southern Silvery, according to Silicon	21.75 to 22.00
Southern Coke, No. 1	20.15 to 20.65
Southern Coke, No. 2	19.15 to 19.65
Southern Coke, No. 3	18.65 to 18.90
Southern Coke, No. 1 Soft	20.15 to 20.65
Southern Coke, No. 2 Soft	19.15 to 19.65
Foundry Forge	17.65 to 17.90
Gray Forge and Mottled	17.65 to 17.90
Southern Charcoal Softeners	20.00 to 22.00
Alabama and Georgia Car Wheel	23.00 to 23.50
Malleable Bessemer	22.00 to 23.00
Standard Bessemer	22.00 to 23.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	27.80 to 29.00

Bars.—The demand for Bar Iron has been extremely heavy, owing in a measure to the cheapness of Bar Iron as compared with Steel. The Republic Iron & Steel Company have booked such a large tonnage during the week that they have notified their agents to take no further orders for delivery before December 1. They have advanced prices $2 per ton, and now quote mill shipments of Common Iron 1.95c. to 2.05c., Chicago. Soft Steel Bars have been in good demand. No large single contracts have been placed, but orders are coming from all classes of buyers. Most of the mills selling in this market are quoting 2.20c. to 2.30c., Chicago, but local manufacturers have not advanced their prices quite so high and are making sales at 2.05c. to 2.15c. Hoops are firm at 2.40c., base, Chicago, for Bands, with a good demand, and the mills are far behind on deliveries. Jobbers are quoting small lots from stock at 2.30c. to 2.40c. for either Bar Iron or Soft Steel Bars, and 3.40c. to 3.50c. for Norway and Swedish Iron. They report a heavy trade with considerable business now coming from large consumers, who are not getting sufficient quantities from mills with which they have contracts.

Car Material.—Inquiries for moderate quantities of cars are in the market from several railroad companies, and more business of this kind would develop if better deliveries could be obtained from the car builders.

Structural Material.—The most important contracts now in the market are for buildings for Swift & Co., taking over 1000 tons; the new Wesley Hospital, 600 tons, and the McCormick Harvesting Machine Company, about 500 tons. A large inquiry is also out for bridge material. The demand for small lots is fair, but is checked to some extent by the inability of manufacturers to make prompt shipments, the leading concerns being from four to five months behind on deliveries. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15 inches and under, and Angles 3 to 6 inches, 2.15c.; Beams, &c., 18 inches and over, and Angles over 6 and under 3 inches, 2.25c.; Tees, 2.20c.; Universal Plates, 2.65c. Store prices take the usual advance above prices for mill shipment.

Plates.—The local manufacturers report no new contracts, their capacity being sold for the remainder of the year. Some business is being done by Pittsburgh manufacturers, whose prices are a little higher than reported last week. The new mills recently started up are rapidly being filled with work. Jobbers are having a continued strong demand from warehouses, and quote 3.25c. for small lots of Tank Steel and 3.50c. for Flange. Mill shipments are quoted at 2.75c. to 2.90c., Chicago, for Tank, 3c. to 3.10c. for Flange, 3.15c. to 3.25c. for Marine and 3.50c. to 3.50c. for Fire Box.

Merchant Pipe.—Mill shipments are still quoted at 50 and two 10's, but not much business is now being taken, as the mills are sold up far into the future and cannot promise delivery under four months. Warehouses are unable to accumulate stock, and shipments are badly broken. Mill shipments of Boiler Tubes are not regularly quoted at present, each inquiry being submitted to the mills. A heavy demand from warehouses is reported. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1¾ inches, inclusive, 40 per cent. off; 2 to 2¾ inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off.

Sheets.—Manufacturers' agents report a good demand for mill shipments of both Black and Galvanized Sheets, but the mills have so much business booked that satisfactory deliveries cannot be promised in all cases. This is throwing a heavy demand on jobbers. Good inquiries are being received here from jobbers in the Northwest for immediate shipment from local stocks. Mill shipments of No. 27 Black Sheets are quoted at 3.18c. to 3.30c., Chicago, and Galvanized Sheets at 70 and 5 per cent. off, with 15c. freight allowance. Jobbers quote small lots of No. 27 Black Sheets at 3.25c. to 3.45c., and Galvanized at 70 per cent. off.

Merchant Steel.—The implement trade are still placing season contracts for specialties in this line, while general consumers are also buying quite freely. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.90c. to 3.05c.; Smooth Finished Tire, 2.60c. to 2.75c.; Open Hearth Spring Steel, 3.20c. to 3.30c., base; Toe Calk, 2.95c. to 3.15c., base; Ordinary Tool Steel, 6½c. to 7½c.; Specials, 13c. and upward. Jobbers are asking the usual advances above mill prices.

Cast Iron Pipe.—A very good demand is reported for small lots, orders seldom exceeding 1000 tons, but coming in so steadily as to keep foundries well employed and prices firmly maintained.

Billets and Wire Rods.—Bessemer Billets could be sold here in large lots at $33.50 if the makers were in a position to take contracts. Sales of small lots are reported at $36.80, with full extras. The most important transaction in this line was the sale of 4000 tons of Open Hearth Billets at $40. Small lots easily bring $45. Wire Rods are in demand, but local mills are sold up to October, and no transactions are therefore reported. The nominal quotation is $45.

Rails and Track Supplies.—Plenty of inquiries are still coming in for Rails of Standard Sections, but for deliveries which manufacturers cannot make. Railroad companies are talking of placing business for next year, but so far have done nothing. Quotations are continued at $31 on large lots and $32 to $33 on small lots. Light Rails are in fair demand at $1.75 per 100 lbs. for small lots, and $30 per ton upward for large lots, according to weight. Track Supplies are quoted as follows: Steel Fish Plates, 1.70c. to 1.80c.; Iron Fish Plates, 2.50c.; Spikes, 2.65c. to 2.70c.; Track Bolts, with Hexagon Nuts, 3.25c. to 3.30c.; Square Nuts, 3.10c. to 3.15c.; Steel Links and Pins, 2.60c. to 2.65c.

Old Material.—All kinds of Old Material are in considerably better demand, and in some cases prices have shown an advance. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, $20 to $20.50; Old Steel Rails, mixed lengths, $15; Old Steel Rails, long lengths, $15.50; Relaying Rails, $19 to $20; Old Car Wheels, $15.50; Heavy Melting Scrap, $14; Mixed Steel, $12. The following selling prices are per net ton: No. 1 Railroad Wrought, $16; Dealers' Forge, $11.50 to $12.50; Fish Plates, $16.50; No. 1 Mill, $8.50 to $9; Heavy Cast, $12 to $12.50; Stove Plates, $7.75; Iron Car Axles, $19.50 to $20; Horseshoes, $12 to $12.50; Cast Borings, $6.50; Steel Axle Turnings, $8.50; Iron Axle Turnings, $9; Machine Shop Turnings, $8.

Metals.—No change has been made in Copper, carload lots of Lake Superior being firmly held at 18¾c. and Western at 17¾c. Spelter is also steady at 5.90c. Pig Lead is in fair demand and quoted at 4.60c. for August, and 4.55c. for September, with no pressure to sell.

Tin Plate.—Business is exceedingly active, with strong pressure on manufacturers for more rapid deliveries. Prices are unchanged in mill shipments. Jobbers report heavy trade in both Bright Plates and Ternes, especially the latter. The building trade is now so active that a heavy demand is experienced for all kinds of roofing material.

Joseph T. Ryerson & Son, manufacturers' agents and Iron and Steel merchants, Chicago, are now owners of all the property between their original warehouse on Milwaukee avenue and Lake street, having secured the last piece of ground the past week. It is believed that eventually their warehouses will extend over the entire area acquired.

Philadelphia.

Office of *The Iron Age*, Forrest Building,
PHILADELPHIA, PA., August 8, 1899.

There is less change in the market than there has been for some time, as quotations all through the list are just about as they were a week ago. The undertone is very strong, however, and, although additional mills and furnaces are at work and offering material, it has not the slightest effect on the market; everything is taken and more wanted. In Finished Material the scarcity seems to be greater than ever, and when satisfactory deliveries can be arranged prices are almost anything that manufacturers choose to name. Pig Iron is firm, but irregular. New brands and off grades are in large supply (comparatively speaking), and as they are not wanted to any extent, prices for such have to be made accordingly. Standard brands are scarce and command full prices; sales both for this and next year's deliveries have been as large as producers are willing to make, but as yet neither side seem disposed to crowd matters. There has been a good deal of guessing in regard to what would be the

course of the market during the midsummer months, but on the whole those who have been the most sanguine appear to have been on the right side. There is still more or less uncertainty as to the remainder of the year, but it is extremely difficult to find any reasonable basis for expecting lower prices, while much could be said in support of the opposite theory. It is very true that the output is increasing, but it is equally true that every additional ton made is taken as soon as it is ready for shipment, and the urgency for deliveries is quite as great as at any time during the entire year. It would appear, therefore, that the demand increases in proportion with the supply and that there is no basis for lower prices. Ores are scarce, fuel is scarce, labor is scarce, shipping facilities are limited, so that unless the demand for Iron and Steel falls off prices must necessarily remain firm with an advancing tendency. The demand, as we have already said, is more urgent than ever, and when actual selling prices are higher than official quotations (as they are now) there can be no question as to the absolute legitimacy of the situation.

Pig Iron.—A very satisfactory business is being done. Old contracts are running out and new ones are made at current prices to quite as large an extent as sellers are willing to accept. There is a diversity in prices, of course, but in no sense of the word is there anything like weakness. Analysis is a consideration, length of time for delivery and quantity are also taken into account, which may and does sometimes make a difference of 50c. to 75c. per ton. The range of prices for October to July, however, appears to be from $20.50, and from that to $21.25 for No. 2 X Foundry, the bulk of the business having been done at $20.75 to $21. These figures may be changed at very short notice, as from a seller's standpoint the outlook is not regarded as entirely favorable for long contracts, even at the high prices now ruling. Producers of Pig Iron are disposed to meet the wishes of their regular trade as far as they can, and will probably contract for 30 to 50 per cent. of the output during the next six or nine months, but they are conservative and not inclined to load up too heavily. They have a pretty sure market for the remainder of the year, and if two or three months of next year are also filled in at present prices they will be in a pretty good position to take their chances for the balance of their product. Prompt shipments of desirable Irons are still very hard to get. Off grades can be had at something around $18, probably less than that in some cases, but they have no effect on the general market, for which prices are firm and quoted as follows for city and nearby deliveries: No. 1 X Foundry, $21.50 to $22; No. 2 X Foundry, $20.50 to $21; No. 2 Plain, $19.25 to $19.50; Standard Mill Iron, $18 to $18.25; Basic, sales at $21; Bessemer, $21.50 to $22.50; Low Phosphorus, $25 to $26.

Billets.—Prices are nominal at $36 to $36.50, but no business of importance has been done very recently.

Muck Bars.—Sellers quote $35, but there is not much demand, as buyers consider the price too high in proportion to other material.

Plates.—The situation is in no respect different from what it has been for several months past. The demand continues without abatement, and a great many orders for large lots are either turned down or postponed for further consideration. Mills are running to their full capacity and are turning out an enormous amount of material, but it is impossible to make all deliveries as promptly as required. Prices firm, and in many cases guaranteed deliveries command more than extreme prices, although nominal quotations are about as follows for seaboard or equivalent points: 2.70c. to 2.75c. for ¼-inch and thicker; Shell, 2.85c. to 2.90c.; Flange, 3c.; Fire Box, 3.10c. to 3.20c.

Structural Material.—The demand is as urgent as ever, and prices are almost anything that sellers choose to name, providing that deliveries are guaranteed. Every day brings in orders that are necessarily turned down, or accepted subject to delays, and from present appearances there is no probability of these conditions being changed for an indefinite period. Prices nominally as follows, but there is no certainty that business would be accepted, unless with a considerable margin of time: Beams and Channels, 2.15c. to 2.25c.; Angles, 2.15c. to 2.40c.; Tees, 2.20c. to 2.25c.; Deck Beams and Bulb Angles, 2.40c. to 2.50c.

Bars.—There appears to be more pressure than ever, not only from local buyers, but from those at a distance. Buyers from New England points have been shopping around, and intimated that 10c. or 15c. per 100 would be no obstacle if the order could be accepted. Several applications of this kind were turned down, and it is probable that this and similar business is still waiting for takers. Minimum prices are as follows for deliveries at seaboard or nearby points: Ordinary Bars, 1.90c. to 1.95c.; Refined Bars, 2c. to 2.10c.; Test Bars, 2.10c. to 2.20c.; Steel Bars, 2.20c. to 2.30c.

Sheets.—There is not as much inquiry for new business, but mills have a great deal of work on their books and are running to fullest capacity, so as to make satisfactory deliveries. A slight pause is not objectionable just now, as there is plenty of business in sight, and which will no doubt come forward in due time. Prices firm as follows for best Sheets (Common Sheets two-tenths less): No. 10, 3c. to 3.10c.; No. 14, 3.20c.; No. 16, 3.30c.; Nos. 18-20, 3.40c.; Nos. 21-24, 3.50c.; Nos. 26, 27, 3.60c.; No. 28, 3.70c. to 3.80c.

Old Material.—There is a good demand, and prices are firm with quite a lot of business at full outside figures, and seldom that the inside figure is accepted. Bids and offers about as follows, for deliveries in buyers' yards: Cast Borings, $11 to $11.25; Wrought Turnings, $12.50 to $12.75; Machinery Cast, $14 to $15; Old Car Wheels, $17 to $17.50; Heavy Steel Scrap, $15.50 to $16; Steel Rails, $17 to $17.50; Iron Rails, $21 to $22; No. 1 Railway Scrap, $19.50 to $21; Iron Axles, $25 to $26; Steel Axles, $18 to $19.

St. Louis. (*By Telegraph.*)

Office of *The Iron Age*, 512 Commercial Building, St. Louis, August 9, 1899.

Pig Iron.—Inquiry is more free this week and fair sales have been made. Concerns whose wants it had been supposed were covered are coming to market, and instances are bobbing up of premiums being paid for small lots of quick delivery Iron. One of the large producers is said to be unable to touch orders for No. 1 Southern Foundry for the balance of the year, and No. 3 Foundry is running very low for this year's delivery. Securing specification on old contract seems to be the main effort of the buyers. Nowadays the consumer keeps the wires hot and in strong contrast to happenings a short year ago, when the buyer had things his own way. No change in nominal prices has taken place, and we quote, f.o.b. cars St. Louis, as follows:

Southern, No. 1 Foundry	$19.75 to $20.25
Southern, No. 2 Foundry	19.00 to 19.25
Southern, No. 3 Foundry	18.25 to 18.50
No. 1 Soft	19.75 to 20.25
No. 2 Soft	19.00 to 19.25
Gray Forge	17.00 to 17.25

Bar Iron.—Mills advise that no new business can meet with delivery this side of December. The demand for Bar Iron continues, and it is remarked that outside consumers are scouring the country for desired shapes and sizes in jobbers' hands. Every indication points to a firm market, and the demand has excelled expectations. Mills quote 2c., base, half extras, East St. Louis, in carloads. Jobbers have almost entirely discontinued selling at half extras, and now quote 2.30c., base, full extras, even to large consumers. Small buyers have to pay slightly more than this.

Rails and Track Supplies.—A fair amount of trade is found and slightly advanced prices on some supplies are mentioned this week. The advance of $2 per ton in Bar Iron has had some effect on Bolts. We quote Steel Splice Bars, 1.75c. to 1.85c.; Iron Splice Bars, 2.55c.; Track Bolts, with Square Nuts, 3.25c.; with Hexagon Nuts, 3.50c.; Spikes, 2.50c.; Steel Links and Pins, 2.55c. to 2.65c.

Pig Lead.—A sale of five cars, chemical hard, at 4.57½c. is noted. Buyers and sellers only become so in fact when necessity requires purchasing. Brokers persist in hammering away at 4.52½c. to 4.55c., but the sale at 4.57½c. was *bona fide*. Refiners say their stock is being taken at their asking prices right along. Lead Ore continues at sale price of $27.50 per 1000 lbs.

Spelter.—A strong tone is noted in Spelter, but no sales are reported at bids of 5.75c.

Zinc Ore.—At the Miners' Association meeting, August 8, it was decided to hold 60 per cent. assay Ore at $43 per ton for the next six months. This basis price was made June 13, and has been renewed weekly without change. The present action is radical, and shows the determination of producers to act without reference to the smelters. Mining is being generally confined to day work, and withdrawal of the night shift has prevented the accumulation of surplus stock. During the last week of December, 1898, St. Louis quoted Spelter at 4.75c., and top price paid for Zinc Ore was $29.50 per ton, but on March 1 the association claiming Ore prices should harmonize with the market for Spelter, placed 60 per cent. Ore at $42 per ton, with St. Louis Spelter sales at 6c. per lb. The present action may bring more stable prices all around, and it has been rumored that Ore producers must levy tonnage assessments for the erection of their own smelters.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, August 9, 1899.

(By Telegraph.)

Pig Iron.—It is reported that a Valley furnace interest have sold 30,000 tons of Standard Bessemer Pig for the first half of 1900 at $21.50 at furnace, equal to $22.25, Pittsburgh. Two or three of the leading Steel concerns have been pulling on stocks very lively of late, and are expected to come into the market before long for more Iron. It is intimated that a purchase of 25,000 to 30,000 tons of Pig for shipment this year might send the price very close to $25. There is a good demand for Gray Forge, and the market is firm. Foundry Iron is scarce, and for prompt shipment very high prices have been paid. We quote Bessemer at $20.50 to $21; Gray Forge, $17, both at Valley furnace; Gray Forge, $17.75 to $18; No. 2 Foundry, $19.50 to $20; Bessemer, $21.25 to $21.75, all f.o.b. Pittsburgh. We note sales as follows: 3000 tons of Bessemer at $20.75, 1500 tons at $20.10, 2000 tons at $20.50 and 3000 tons for last four months at $20.50, all f.o.b. Valley, freight to Pittsburgh being 75c. We also note a sale of 600 tons of Gray Forge at $17.75, Pittsburgh.

Billets.—There is a good deal of inquiry for Steel, and prices seem to be higher. One mill outside the Pittsburgh district is quoting at $35 at mill, making the price very close to $37, Pittsburgh. The market is all of $34.50 to $35, with reports of sales up to $36. Basic Open Hearth Billets are $42.50 to $45, Pittsburgh, depending on deliveries, sizes and carbons.

Sheet Bars.—We do not hear of any sales. We quote at $35 to $35.50, delivered at buyer's mill.

Muck Bars.—We quote standard grades at $34, Pittsburgh, and note a sale of 1000 tons at that price.

(By Mail.)

The market is exceedingly strong, with the tendency of prices decidedly upward. In the past week there have been some sales of Bessemer Pig into first half of next year, one such transaction reported to have been for 30,000 tons at $21.50, Valley furnace. Several round lots of Bessemer Pig, for delivery in last quarter of this year and into first quarter of next year, have sold at about $21, Valley furnace. The market is all the way from $20.50 to $21, at furnace. There is a good deal of inquiry for Steel, and prices are $34.50 to $35, Pittsburgh. Some outside mills quote on this basis, to which the freight to Pittsburgh would have to be added. In Finished Material there is nothing specially new. The tone of the market is strong, with the tendency toward higher prices very favorable. A good deal of tonnage is being placed, and the mills are apparently not catching up on deliveries.

Ferromanganese.—We make nominal quotation on domestic of $85 for 80 per cent. Foreign brands in small lots, and for prompt shipment, have sold up to $100, f.o.b. Pittsburgh.

Plates.—Demand is as heavy as ever, and with the mills congested with business buyers find it difficult to get deliveries, and in some cases have offered very attractive prices to facilitate prompt shipment. It is a fact, though, that the capacity for Sheared Plates has been very materially increased of late, and it is not unlikely the top of the market has been reached. There is some inquiry for Plates for next year, but so far as we can learn little has been done. The tone of the market is very strong, and we repeat quotations of last week, as follows: Tank, ¼-inch and heavier, 2.50c. to 2.60c.; Shell, 2.60c. to 2.65c.; Flange, 2.70c. to 2.75c.; Marine, 2.80c. to 2.85c.; Medium Fire Box, 3c.; Best Fire Box, 3.25c. to 3.50c., f.o.b. at mill.

Structural Material.—Some Eastern work placed last week, involving about 4000 tons, has been taken by a local mill. The demand is very active, the high prices not restricting consumption to any noticeable extent. In fact, the mills are filled up so far ahead that a good deal of work will have to go over into next year on this account. The report that a meeting of the Beam pool was held last Thursday is untrue. We quote: Beams and Channels, 15-inch and under, 2c.; 18, 20 and 24 inch, 2.10c.; Angles, 3-inch and up to 6 x 6 inch, 2c.; Angles under 3 inches, prices on which are not controlled by the Beam pool, are 2.15c. to 2.25c.; Tees, 3 inches and larger, 2c.; Tees under 3 inches, 2.20c. to 2.30c.; Zees, 3 inches and larger, 2c.; Bulb Angles and Deck Beams, 2.30c.; Grooved Rolled Plates, 2.35c., all f.o.b. Pittsburgh.

Bars.—Steel Bars are higher and local mills are quoting at 2.10c. up to 2.25c., at mill. They are scarce even at those prices, and buyers are having as much difficulty as ever in getting deliveries fast enough to meet requirements. There is a good steady demand for Iron Bars, and some of the mills belonging to the Republic Iron & Steel Company are filled up for the next two or three months. Prices are very strong, and we quote Iron Bars at 1.85c. to 1.90c., half extras, Valley mill. Bars made from all Muck Bar stock are held at 2.10c. to 2.25c., at mill. We quote Steel Bars, cut to lengths, at 2.10c. to 2.25c., at mill, depending on deliveries wanted.

Sheets.—Demand for both Black and Galvanized Sheets has picked up considerably since the first of the month, being much heavier than in the last couple of weeks in July. Mills rolling Black and Galvanized Sheets are well filled up, some of them being practically out of the market as sellers for the balance of the year. Prices are strong, and we quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 3c.; No. 28, 3.05c. to 3.10c. We quote Galvanized Sheets at 70 and 5 per cent., with 15c. freight allowance, in carload lots.

Merchant Steel.—There is a heavy demand from the general trade, and a good deal of tonnage has been entered this month. A few agricultural implement contracts are still being placed. Prices are very strong and we quote: Toe Calk, 2.75c.; Open Hearth Tire, Machine Straightened, 2.75c.; Machinery Steel, soft, 2.75c.; Hard, 3c.; Common Spring Steel, 3c.; Crucible Analysis, 3.50c.; Tire Steel, 2.50c. to 2.60c.; Plow Slabs, Bessemer, 2.75c.; Open Hearth, 3c.; Sleigh Shoe, 2.75c.; Cutter Shoes, Tempered and Bent, 3.75c.; Crow Bars, Pinch and Wedge Point, 3.50c.; Lay Steel, Rolled, 4c.; Hammered, 5c.; Tool Steel, 6.50c. up to 14c., according to grade. Terms, 60 days, less 2 per cent. cash in ten days.

Rails.—There is very little new business. We quote nominally at $30 to $32, at mill, for heavy sections.

Pipes and Tubes.—There is nothing of special interest to note this week. There is a fair tonnage offering in Merchant Pipe, which the mills are entering at full prices. An official announcement from the National Tube Company as to officials, sales agents, &c., is expected this week. We quote Butt and Lap Weld Merchant Pipe at 50, two 10's, and 5 per cent., delivered, in carload lots, and 50, two 10's, at buyer's mill, for small lots. There is a good demand for Casing, and prices are strong. We quote Screw and Socket Joint at 40 per cent., and Inserted Joint at 35 per cent., with an extra 5 per cent. to dealers. Boiler Tubes are in good demand and prices very firm. We quote: 1¼ to 1½ inch Iron and Steel, 40 per cent. off list; 1¾ to 2½ inch, Iron, 50 per cent.; Steel, 55 per cent.; 2¾-inch and larger, Iron, 55 per cent.; Steel, 57½ per cent., with an extra 5 per cent. to dealers. On carload lots freight is allowed, and on less than carload lots prices are f.o.b. maker's mill.

Skelp.—The market is very active and sales of Skelp for prompt shipment have been made at very high prices. For ordinary widths and delivery within 60 to 90 days, we quote: Grooved Iron and Steel Skelp, 2.25c. to 2.35c., and Sheared at 2.60c. to 2.75c. A sale of 1200 tons of Sheared, for early delivery, is reported, on the basis of 2.67½c., Pittsburgh.

Connellsville Coke.—It is reported that contracts for Connellsville Coke have been made for first half of next year at high prices. Last week out of 18,696 ovens in the Connellsville region 18,146 were active and 550 idle, the output being 192,556 tons. Strictly Connellsville Furnace Coke has sold in round lots on emergency orders at $2.50, at oven. We quote strictly Connellsville Furnace Coke at $2.25, and Foundry at $2.30, at oven, while outside brands can be had at lower prices.

Cincinnati. *(By Telegraph.)*

Office of *The Iron Age*, Fifth and Main streets, CINCINNATI, August 9, 1899.

Too strong emphasis can hardly be laid upon the strength of the market. The past week's business has settled beyond all dispute the question of Pig Iron for this year's delivery. Sellers here are strictly at the end of their strings, and scarcely a single ton of Foundry Iron above No. 3 can be bought for delivery before next year. There is still a limited quantity of No. 3 which can be promised. That is the situation in Southern circles, and in the North it is, if anything, even more strained. There has been a fair amount of new business booked for next year's delivery at to-day's quotations. Some of this business extends clear through to the end of the year. One of the most important questions now is the

one touching delivery on old orders. Furnaces, as a rule, are badly behind. Some claim that deliveries are being hampered to some extent by the shortage of cars, but it is also beyond question that the furnace interests generally are badly oversold. While there has been no actual advance in quotations, yet the hardening process has continued to the elimination of all minimum prices for foundry grades as quoted a week ago. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$19.25	to	$19.50
Southern Coke, No. 2	....	to	18.25
Southern Coke, No. 3	....	to	17.50
Southern Coke, No. 1 Soft	19.25	to	19.50
Southern Coke, No. 2 Soft	....	to	18.25
Southern Coke, Gray Forge	16.25	to	16.50
Southern Coke, Mottled	16.25	to	16.50
Ohio Silvery, No. 1	....	to	27.00
Ohio Silvery, No. 2	....	to	26.00
Lake Superior Coke, No. 1	20.00	to	20.50
Lake Superior Coke, No. 2	19.50	to	20.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	....	to	$20.25
Lake Superior Car Wheel and Malleable	....	to	23.50

Plates and Bars.—The market is very strong, with prices practically unchanged. We quote, f.o.b. Cincinnati: Bars, at retail, 2.15c., with full extras; Bars, wholesale, 2c., with half extras; Bar Angles, 2.35c. for ½-inch and larger; Sheets, No. 10, 2.85c.; No. 27, 3.35c.; Plates, 2.75c. to 2.85c.

Old Materials.—Business has been quite fair, and market holds steady on an unchanged basis. We quote, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, $16 to $16.50; Cast Scrap, $11 to $12; Axles, $19 to $20; Iron Rails, $19 to $20; Car Wheels, $15 to $15.50.

Birmingham.

BIRMINGHAM, ALA., August 7, 1899.

In prices there is no change to record in the Iron market. They have kept on a pretty even keel. The demand has been a fine one from the domestic trade, but all the orders, practically, are for long delivery and the most of them for 1900 delivery. A few thousand tons were sold for delivery the last half of 1900. Among the orders for next year's delivery there was registered 15,000 tons Basic Iron. Accepted orders register more than current output. The buying element seem to have conceded the probability of a continuance of the present range of prices and are placing orders in accordance. But an occasional exception is in evidence, as illustrated by a large agricultural implement concern which came in for 10,000 tons and declined to accept the price. But others took the offerings and accepted business ranged from 1000 to 10,000 tons. The furnaces whose going into blast has been so long heralded are "getting there" very slowly. It requires something more than the mere getting the furnaces ready; and the difficulties and delays connected with the opening of mines of Coal and Iron and a regular output assured, is a problem of grave importance; for, superadded to the ordinary difficulties, is the grave one of scarcity of labor of a desirable kind. In many cases it is scarcity of labor of any kind. Affairs in Georgia have influenced to this district an appreciable addition to the ranks of common labor. But as a rule it is familiar only with common farm labor, and has to be trained before good results are obtained. To offset this addition, labor agents representing Western mining interests are actively at work with "taking" inducements that influence many to change location. It is questionable if the corporations exerting themselves to add to their labor do more than preserve their average. It is becoming a serious question and is a strong factor in the calculations of increased output in this section. On paper it works out well. In practical experience theory is voted "a gay deceiver." Well, the reorganization of the Sloss-Sheffield Iron & Steel Company leaves the absorber in the saddle, with an increase in the stock from $5,000,000 to $20,000,000, and with an amount laid aside to build a Steel plant, and a cash capital for working purposes and further additions if desirable. Rumor, with her thousand tongues, is yet busy with the concluded deal and another in embryo. But they are passed by, as there has been no real evidence of any new deal yet come to the surface. As to the report of a consolidation of the Tennessee, the Sloss and the East Tennessee & Virginia companies, it can be announced on the highest authority that there is nothing of the kind in contemplation. If there was some of the officials here would know it. As to the Steel plant at Ensley, progress is slow for reasons previously given, and the same statement applies to the Rod and Wire Nail mill.

While upon this subject it may as well be mentioned that the Steel mill officials have received from a large firm interested in Steel products an inquiry as to their ability to furnish them Steel Ingots and other forms in quantities sufficient for their requirements; and accompanying the inquiry is a strong intimation that if they would guarantee 300 tons per day it would have a great influence in determining their consideration of the propriety of removing their plant. It looks as if their contract with the Rod and Wire Nail mill will keep them busy, as the minimum daily requirements of 600 tons can be expanded at their convenience to 1000 tons. It would not be business for the Rod mill to share their monopoly with another. But it shows the desirability of additional Steel mills and encourages the Sloss people in their intentions as above stated. It is safe to say that during 1900 we will have four Steel mills here in operation, all of up to date improvements and efficiency. Then, reasoning from effect to cause, there will follow the industries that are engaged in producing Steel products. Then, what? Let the future tell. The Mobile & West Alabama Railroad, conceived in the fertile and practical brain of the late Jno. T. Milner, so often called the Father of this district, is taking business shape. It commences at Florence, on the northern border of the State, and terminates at Mobile. It follows the gorge of the Warrior River, penetrating fields of Ore and Coal and timber, many of which have heretofore been "laying out," and, touching Tuscaloosa, parallels the Tombigbee and opens up to the world a section of the finest and most productive agricultural lands in the State. The grades to the Gulf are all easy, permitting heavy trains at least cost of haulage and affording delivery at Mobile of freight at least cost of transportation to shipper. Parties are in the field obtaining right of way and subscriptions from the counties through which it passes. The right of way obtained and the small total of $400,000 in subscriptions secured, a railroad building firm have offered to build the road. The benefit that would accrue to the State from this is very great. It would be a developer that could only be denominated as without a peer. It is thought that other railroad interests dominating this district and the State will oppose bitterly its consummation. But opposition would solidly unite public sentiment against such a policy, to the detriment of those working it. The new line will throw out a branch to this city and Ensley, and it will be the rate maker on freights to the Gulf. It would lead to the building of shipyards at Mobile and aid immensely the success of the Alabama Steel & Shipbuilding Company, at Ensley. As an aid in the continuance and increase of the export trade its value would be great. Professor Fowler of England many years ago predicted that the great shipbuilding yards of the future would be at ports on the Gulf of Mexico. This road is the first step in the realization of this prediction.

Cleveland.

CLEVELAND, OHIO. August 8, 1899.

Iron Ore.—The advance in the rates paid for the transportation of grain from the head of the lakes and the heavy demand for boats for both Ore and grain has resulted in all kinds of optimistic speculation regarding Ore carrying rates, and vesselmen, whose views are not usually visionary, are freely predicting the payment of $1.50 before the end of the season. As yet the best rates actually contracted for a movement from the head of Lake Superior are $1.15 for the month of August, and $1.30 on a contract that runs into November. Ore to be moved in August has also been covered at $1.10, and the Marquette rate was advanced some days ago to $1. Both rates are firm, as there is little tonnage on the market. The Escanaba rate has thus far remained at 75c., but shippers will have to bid above that figure by the close of the present week. The movement of Ore to date is certainly heavier than has ever been known. The reports which have just been made at the offices of the Ore dealers at Cleveland show that the movement from all shipping ports to August 1 was 7,630,706 tons, against 6,818,887 tons for the corresponding period last year. It will thus be seen that shipments for the season to date are about 800,000 tons ahead of 1898, and the movement for the month of July is 690,000 tons ahead of the same month of last year. The situation certainly looks a little more hopeful when it is taken into consideration that most of the estimates made of the season's output were in the neighborhood of 15,000,000 tons, and the Ore men have, it will be seen, succeeded in moving more than half that amount in three months.

Pig Iron.—The situation shows very little change. No sales are reported save in the case of a few small lots, in which $21 has been paid for No. 1 Foundry, and $20 for No. 2 Foundry, immediate delivery being promised. Almost all sales for the first half of next year are on the basis of $19 and $20, the quotations which have prevailed for some weeks past. Southern Iron is still securing its share of the business, and Lake Superior Charcoal and Gray Forge remain as hard to secure as ever, with the same nominal quotations in force.

Finished Material. — Orders have been coming in more freely during the past week, but the difficulty in getting material shipped seems to increase rather than diminish. Bar Iron is listed out of stock at 2.10c., and Bar Steel is quoted at 2.50c., also out of stock. Pipe prices remain as last quoted. Plate, of gauges No. 16 and heavier, has advanced 25c., and the advance on Sheets is indicated by the new quotation of 3.30c. on No. 27. On Galvanized Sheets the quotation is 70 and 5 per cent. off. It is understood that one of the large interests has established the rule of charging full extras on all orders of less than a carload for Bar Iron, but a majority of the sales agents here still observe the half extras plan.

Old Material —The situation shows very little change over that outlined in reports for several weeks past. The demand continues good, but the supply seems, as a rule, adequate, and prices show little more tendency to assume a standing proportionate with the quotations now in force on other grades of material. Several inquiries have been received in this territory from Eastern buyers.

The Belgian Iron Market.

BRUSSELS, July 24, 1899.—The industrial movement in Belgium has now been proceeding for two or three years, a period of prosperity unparalleled so far as its duration is concerned. Far from appearing to be approaching its end this situation, according to all indications, is bound to last at least until the end of the year 1900. There has not been this time that abnormal feverish development which has characterized former periods of recovery, and which was accompanied by at least as much speculation as it was by real improvement. This time, on the contrary, business has prospered slowly, the rise developing very gradually. Now everything points to peace, which increases the confidence of the business community, and yet the different governments proceed with unprecedented ardor to build battle ships and provide armament. This procures large orders for the metallurgical works. At the same time building is very active in Europe, notably in Belgium. The requirements for metallurgical products growing therefrom and simultaneously the replacement of wood by Iron have been of great advantage to the Iron and Steel industries. The electrical industry, too, requires a good deal of Iron, and has become enormous in recent years. The same may be said of the building of tramways and of light local steam roads. It is well, too, to mention the Belgian enterprises in the Congo, in Russia, and elsewhere, which have opened to us new and important outlets for Iron and Steel, either directly or indirectly, in the form of Tools and Machinery. Then there has been an important development in the bicycle and automobile industry, which has grown very rapidly in Belgium. Even foreign firms, notably English concerns, have established construction shops in our country recently.

While confidence reigns and requirements grow production is unable to follow, being forcibly limited by the scarcity of Coke and of Coal. For the moment, too, the extreme heat must be taken into account, since it affects the output by reducing the work of the men. The question naturally arises what the advance in prices has been. This is shown in the following quotations:

	June 24, 1899.	July 24, 1899	July 24, 1898.
No. 3 Luxemburg Foundry Iron	85 00	95.00	56.00
Luxemburg Mill Iron	79 00	85.00	50.00
Charleroi Mill Iron	84.00	90 00	54.00
Thomas Pig	90.00	100.00	65 00
No 2 Bars, f.o.b. Belgian stations	180.00	190.00	132.50
No. 3 Bars, f.o.b Belgian stations	185.00	195 00	137.50
No. 2 Bars, f.o b. Antwerp	177.50	185.00	125 00
No. 3 Bars, f o.b Antwerp	182 50	190.00	130.00
No. 2 Steel Beams, f.o.b. Belgian stations	180.00	190.00	132.50
No. 2 Steel Beams, f.o.b. Antwerp	175.00	185 00	127.50
Angles, f.o.b Belgian stations	190.00	200 00	135.00
No. 2 Iron Plates, f.o b. Antwerp	195.00	210.00	135.00
No. 3 Iron Plates, f.o.b. Antwerp	208.00	220.00	145.00
Steel Plates, f o.b. Antwerp	210.00	225.00	145.00
Sheet Iron, f o b. Belgian stations	225 00	230.00	
Steel Rails, f.o.b. Antwerp	130 00	130 00	105.00

The fact which more particularly affects favorably Finished Iron and Steel is that nearly all the rolling mills and Steel works have contracted for their supply of Pig Iron at prices considerably below present values, in that way covering the whole of the year 1900 at an average of 65 francs for Mill Iron and 75 francs for Thomas Pig. They have also, up to April 1, 1900, purchased their Coal. On the other hand, they have been careful not to sell out their own product, so that they are profiting from the high prices for finished products now ruling. Unfortunately Pig Iron continues to be very scarce, which prevents a development of the production as the demand for finished products increases, and this scarcity of Pig Iron in turn is due to the famine in Coke. This scarcity is created by the Coke syndicate, because Belgium is capable of producing supplies of Coke ample for its consumption. The syndicate, however, exports all it can to other countries, particularly to France, the Grand Duchy of Luxemburg and to Germany. Exports of Coke are also directed to Holland, Italy, Switzerland, Australia and the United States, the latter country having actually received 3280 tons during the first half of 1899. When a comparison is made between this year's exports of Coke and those in the corresponding half of 1898, it is shown that during the present year there has been an increase of 77,000 tons, or 18 per cent. In the month of June alone the increase has been 27,000 tons, or 40 per cent., above that of the corresponding month of 1898, and this is done at a time when Belgium is actually famishing for Coke.

The question has been asked in the Senate whether there was no means of intervening in order to stop such a dangerous abuse, but unfortunately the fact has been recognized that in the present state of legislation nothing can be done. A new law must therefore be passed.

The Belgian blast furnaces had all covered requirements for 1900 at prices which have now become advantageous, and on the basis of these Coke figures had sold their Pig Iron. Now under the pretext of equalizing prices the syndicate has demanded from its customers to average these sales with those relative to the year 1901, so as to reach an average of 25 francs. This means an advance of 5 francs per ton. The blast furnaces, who are unable to judge what the situation of the Belgian Iron industry will be in two years, hesitate to bind themselves for so long a time. The syndicate, however, threatens to sell its entire product to foreign markets for the year 1901, and that at once, unless its demands are immediately accepted. Those Belgian furnaces which possess Coking ovens are making arrangements to buy Coking Coals in England, but the rates of freight on the Belgian railroads for the importation of foreign Coals are twice as high as those for export of Coal, an absurdity on its face. The result is that the Coal thus imported comes very high, while the Belgian collieries are given every facility to send their own product to foreign markets. This is a serious situation which greatly disquiets the Belgian rolling mill managers.

New York.

Office of *The Iron Age*, 232-238 William street,
NEW YORK, August 9, 1899

Pig Iron.— The demand for early delivery continues unabated, and the interest in supplies for the first half of the next year is growing. Occasionally we hear of some small lot which consumers are reselling, but the movement is without significance. There have been some large sales of warrant Iron by merchants to consumers, to meet immediate requirements, the quantity involved being about 10,000 tons. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, $21 to $21.50; No. 2 X, $20.25 to $20.50; No. 2 Soft, $19 to $19.25; No. 2 Plain, $19.25 to $19.50, and Gray Forge, $17.75 to $18.25. Southern brands are quoted: No. 1 Foundry, $20.25 to $20.50; No. 2 Foundry, $19.25 to $19.50; No. 1 Soft, $19.75 to $20.25; No. 2 Soft, $19 to $19.25; No. 3 Foundry, $18.50 to $18.75, and Gray Forge, $17.50 to $17.75.

Cast Iron Pipe.—We note a sale at private terms of a moderate lot for this city. The Philadelphia order involves about 1850 tons.

Steel Rails.—The market continues very quiet, and quite nominal at $30 to $31 for Standard Sections.

Track Fastenings.—We quote: Angle Bars, 1.85c. to 1.90c.; Spikes, 2.15c. to 2.25c., and Bolts and Nuts, 2.35c. to 2.50c.

Finished Iron and Steel.—No large lots of material have been placed during the last week, although a number of small export orders have been booked. The market remains strong at the following quotations: Beams, 2.15c. to 2.20c.; Angles, 2.15c. to 2.20c.; Universal Mill Plates, 2.50c. to 2.60c.; Tees, 2.20c. to 2.25c.; Channels, 2.15c. to 2.20c.; Steel Plates are 2.65c. to 2.70c. for Tank, 2.80c. to 2.85c. for Shell, 2.90c. to 3c. for Flange, 3c. to 3.10c. for Fire Box, 3.10c. to 3.15c. for Locomotive Fire Box, on dock. Refined Bars are 2c. to 2.05c. and Common Bars are 1.85c. to 1.90c. on dock. Soft Steel Bars, 2.10c. to 2.20c.; Steel Axles, 2.10c. to 2.20c.; Scrap Axles, 2c. to 2.10c.; Links and Pins, 1.80c. to 1.90c.; Hoops, 2.42½c., base, delivered.

From all parts of the West come reports of a pronounced and increasing car famine. The railroads are carrying to their utmost capacity and are obliged to refuse orders daily for lack of cars. The Lake Shore road is reported to be doing four times as much business as last summer, and the business of all the other leading roads is only limited by their capacity. Although all the roads have materially increased their freight car equipment in the past few months, many thousands of additional cars could be utilized at the present time if they were available.

Metal Market.

Office of *The Iron Age*, 232-238 William street, New York, August 9, 1899.

Pig Tin.— Wide fluctuations were again the feature of the market. On Thursday last the market here was 31¼c., but on Friday it was so dull and weak that buyers kept shy of the market, and the quotation was nominal at 30½c. On Saturday a firmer tone existed, and the market went up to 31c. Monday brought an additional advance of ½c., and Tuesday's quotation was 32c., flat. To-day the market closed entirely nominal at 32¼c., with the tone easy and unsettled. There was no halt in London's manipulation, and although the quotations were not as wild as they have been within the last few weeks the fluctuations were far beyond normal. Thursday opened with £139 15s. Friday declined exactly £2, and owing to the holiday in London the market was closed until Tuesday morning, when the first cable named £145 5s. To-day it advanced to £145 17s. 6d. for spot, and £147 three months' futures. Notwithstanding the sensational reports which have been circulated recently the market in New York was not active. Consumers are purchasing very cautiously on a hand to mouth policy.

Copper.— This market was firm, and while in certain quarters Lake is still quoted at 18½c. it would doubtless be extremely difficult to obtain any of the metal at that figure. The prevailing quotation seems to come nearer to 18¾c. for large lots. This price is, of course, for future delivery, as it is about impossible to obtain any immediate delivery. Transactions are now naming September and October delivery. This is as early as the large producers can meet. It is said that there were sales of small lots for September delivery at 18⅝c. during the last week. Electrolytic is stronger and is held well up at 17¾c., while Casting Copper is firm at 17½c. The London market has been somewhat firmer, and closed £76 10s. for spot, and £77 for three months' futures. Best Selected has recovered 10 shillings, and is quoted to-day £80 10s.

Pig Lead.— This market is quiet, although spot and deliveries extending into this month are somewhat difficult to obtain. Quotations on the latter range between 4.50c. and 4.60c. It is stated that September delivery can be secured at 5 points lower than these figures. The St. Louis market is dull and nominal at 4.52½c. to 4.55c. London has advanced 2 shillings and 6 pence, coming to-day £14 12s. 6d.

Spelter.— This metal held up pretty firmly throughout the latter portion of last week. But on Monday the market took a quiet turn, and has been rather dull ever since. Spot is still held at a slight premium, and cannot be had here for less than 6c., while August and September delivery is quoted at 5.75c. to 5.85c. The St. Louis market comes to-day nominal at 5.75c. London shows a heavy decline, closing to-day 24 pounds 15 shillings. This decline amounts to exactly £1. The price of Ore remains unchanged at $45 per ton. Private advices from Joplin state that the conference held there last week was a failure, and that the smelters were very sparsely represented.

Antimony.— Is entirely unchanged, and we still quote Hallett's 9¾c. to 10c., and Cookson's 11c.

Nickel.— Has not been changed, and the conditions remain the same. Prices for Canadian Nickel range from 36c. to 40c. for larger lots than 1000 pounds, and 40c. and upward for smaller quantities.

Tin Plate.— A slight advance has been made by the American Tin Plate Company in the price of Charcoal Plates. The company's prices for 100-lb. Cokes, New York delivery, have not been changed, however, and it is still quoted 4.55c. to 4.60c. per box.

J. McLeod, who has been identified with the Steel and Metal interests in New England for the past few years has recently been appointed New England sales agent for several standard lines of special metals, and is now located at room 205, Wentworth Building, Boston.

The National Association of Gas and Gasoline Engine Manufacturers met in Detroit, Mich., last week for their first convention. The association was organized only a few months ago in Columbus for the purpose of bringing together at stated intervals manufacturers of gas and gasoline engines, to discuss such matters as are of interest to them. The initial meeting was devoted mainly to matters of organization. S. E. Baker of Springfield, Ohio, was elected president; R. E. Weber of Kansas City, vice-president; A. S. Rodgers of Springfield, Ohio, secretary, and C. D. Dudgeus, of Columbus, Ohio, treasurer. The association will hold its next meeting in Chicago the first Wednesday in November.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, New York, August 9, 1899.

In another column we print the list of bidders and the bids which were opened at Washington, D. C., yesterday for the equipment of the central power station to be erected at the New York Navy Yard, Brooklyn, N. Y. We have received the following official confirmation of our report of last week regarding the awarding of the boiler equipment purchased by the Manhattan Railway Company: "The Babcock & Wilcox Company have sold to the Manhattan Elevated Railway Company of New York City the boilers required for their new electric generating plant, which will furnish electric current for operating their entire elevated railway system in New York City. The boiler equipment will consist of 64 520 horse-power Babcock & Wilcox all wrought steel boilers, capable of carrying a working pressure of 200 pounds per square inch. The boilers will be fitted with Roney automatic stokers, manufactured by Westinghouse, Church, Kerr & Co. This is the largest single order ever placed for stationary boilers."

In the machine tool trade everything points toward an excellent month of August. There are at least two fair sized inquiries which it is said will be closed before the end of the month. General inquiry has started in strong, and it is hinted in certain quarters that this is due largely to a feeling which is prevalent in the trade that the market is at the eve of another all around advance in prices.

We are informed that both the Hendey Machine Company of Torrington, Conn., and the Lodge & Shipley Machine Tool Company of Cincinnati, Ohio, have just advanced their prices 5 per cent.

Regarding two of the automobile manufacturing companies, to which we referred last week, we have since learned that both the Locomobile Company of America and the Mobile Company are controlled by identical interests, both these companies are offspring from the Automobile Company of America. Both companies are building the Stanley motor. It is said that about 51 per cent. of the stock of both companies is owned by John Brisben Walker, the proprietor of the *Cosmopolitan*. The balance of the stock is controlled by A. L. Barber, president of the Barber Asphalt Paving Company.

The Locomobile Company of America, whose offices are at 11 Broadway, have for some time been operating a small factory at Newton, Mass. They have recently purchased the Humber bicycle plant located at Westboro, Mass. Both of these plants are being added to on a large scale. For this purpose extensive purchases have been made of machinery, and the buying is still going on.

The Mobile Company are now erecting an entire new plant at Kingsland Point, Tarrytown, N. Y. The business of this concern is now being conducted by J. B. Walker at office No. 180, Times Building, New York. This company own 300 acres of land on Kingsland Point. The new factory building is to be 500 x 60 feet, and two and a half stories high. An order has just been placed with the Bass Foundry & Machine Company of Fort Wayne, Ind., for a 250 horse-power engine. James Beggs & Co., 9 Dey street, received an order for Cauldwell water tube boilers. J. B. Walker is now in Boston placing orders for a portion of the machine tool equipment. It is said that he has just closed with Hill, Clarke & Co. for a good portion of the equipment. The machinery which will be installed in this shop will amount to considerably more than $100,000.

Wilhelm Melzmacher, chief engineer for A. Borsig, the large German locomotive builder and structural iron and steel worker, is in this country investigating American methods of manufacture. He is at present stopping at the Belvedere. His stay in this country will last several months.

Rudolf Hirsch and Theodore Stapf, directors of the Richard von Schoeller Company, Hirschwang, Austria, will arrive in this country within a few days. Mr. Hirsch is managing director of this concern's bolt and nut works, which are located at Neunkirchen, and Mr. Stapf is manager of the steel works owned by the company and situated at Ternitz. These gentlemen will investigate American machinery and steel works practice while here. They will also purchase a considerable quantity of machine tools, bolt and nut machinery, railroad supplies and power transmission machinery.

The Pennsylvania Iron Works of Philadelphia have recently purchased a number of Gisholt lathes and other labor saving machinery in this market.

An order was given to the Buffalo Forge Company of 39 and 41 Cortlandt street and Buffalo by the Deutsches Niles Werkzeug-Machinen Fabrik of Niederschweide, near Berlin, Germany. The contract calls

for heating and ventilating apparatus for the new machine shop and equipment of the forge shop. The apparatus includes two 180-inch full house steel plate exhaust fans (three-quarter housing style), one right hand and one left hand top horizontal discharge; 24-row heater sections 6 feet by 7 feet 10 inches, and two Snow pumps and receivers. All this machinery is for the machine shop. Two 140-inch full house steel plate exhaust fans, one right and one left bottom horizontal discharge. Sixteen four-row heater sections, 5 feet by 6 feet 10 inches. One size C Snow pump and receiver. This lot will be utilized in the foundry. The following apparatus is intended for the forge shop: Eighteen forges of various sizes, a 70-inch planing mill exhaust fan, with left hand up blast. One 6B volume blower and 13 hoods, with interior cone arrangements.

The Buffalo Forge Company also secured the contract for four 50 horse-power and two 75 horse-power high speed vertical center crank engines, a direct connected pressure blower and a 300 light generating set, to be installed at the new plant of the American Sugar Company, located on the Island of Molokai, Hawaiian Islands. It is said that the American Sugar Company will spend $400,000 in equipping the plant with machinery.

The George V. Cresson Company of 141 Liberty street and Philadelphia, report an excellent condition of business in power transmission machinery. Export orders have been coming in in good volume, and work is now under way on large contracts received from Holland, China, Mexico and Canada. Recent large orders have also been received from the Union Metallic Cartridge Company of Bridgeport, Conn.; Coplay Cement Company of Coplay, Pa., and the Trenton Iron Company. An order has just been received for large dredging outfits for river and harbor work, and one for gold dredging in Idaho. In the crushing machinery department orders are being booked months ahead. There are at present going through the shops ten sets of 36-inch Buchanan rolls.

The Syracuse University of Syracuse, N. Y., are in the market for a 1200 horse-power boiler plant.

Woolston & Brew, 141 Broadway, have been awarded a contract for a 450 horse-power Brown engine from Crane & McMahon of Brooklyn. N. Y. They also received an order from the Nathan Mfg. Company of this city for a 200 horse-power Brown engine.

The order for the three 180 feet stacks to be erected with the Leggett Building, Brooklyn, was awarded to the Coatesville Boiler Works, 141 Broadway and Coatesville, Pa.

Westinghouse, Church, Kerr & Co., 26 Cortlandt street, report a cable order for a 500 horse-power compound engine from Sweden. This will be about as large an engine as was ever shipped to Sweden from this country.

Contracts have just been placed with the E. P. Allis Company of Milwaukee, for two 300 horse-power engines, for installation in the power plant to be erected on the Isle of Thanet, England. The power plant is for the generation of electrical energy for a new trolley road.

The Seamless Tube Consolidation.

Under the leadership of the Shelby Steel Tube Company the principal makers of seamless steel tubing have consolidated. The Shelby Steel Tube Company themselves have before absorbed a number of plants controlling besides the original works at Shelby, Ohio, the Ellwood Weldless Tube Company, at Ellwood City, Pa., the works of the Greenville Tube Company, at Greenville, Pa.: the American Weldless Tube Company and the Brewer Tube Company, at Toledo, Ohio, the Mansfield Machine Company, at Mansfield, Ohio: the U. S. Standard Drawn Steel Company, at Cuyahoga Falls, Ohio, and the Hercules Seamless Drawn Tube Company, at Garwood, N. J.

To these there have now been added the Pope Tube Company of Hartford, Conn.; the tube department of the United States Projectile Company, at Brooklyn; the New Castle Tube Company, at New Castle, Pa., and the Albany Mfg. Company, at Albany, Ind. The draw benches at the Brooklyn plant have been removed.

The total capacity of the Shelby Steel Tube Company was 57,000,000 feet per annum. The new acquisitions add to this about 43,000,000 feet more, carrying the total to 100,000,000 feet per annum.

Information Wanted.— A correspondent wishes the names of manufacturers of machines for setting boxes in carriage wheels.

The Link-Belt Engineering Company of Nicetown, Philadelphia, have recently been awarded contracts by the New York Central & Hudson River Railroad Company for three complete locomotive coaling stations, to be erected at Utica, Weehawken and Kingston. These stations, to handle run of mine bituminous, will employ the Link-Belt carrier. They also have in course of construction a locomotive coaling station for the Lehigh Valley Railroad Company, at South Plainfield, N. J. At this point lump anthracite, run of mine bituminous, and the small sizes of anthracite are to be handled.

The Activity in Building.

The *Real Estate Record and Guide* has gathered some statistics to show how the improvement in business has stimulated building activity, the figures covering the first six months of the two years:

	January to June.			
	1899		1898	
Cities.	No.	Cost	No.	Cost.
New York (Manhattan and Bronx).	4,565	$71,370,870	2,787	$42,962,519
Borough of Brooklyn	3,724	12,830,985	3,006	7,891,290
Chicago	2,118	11,865,260	2,082	10,152,800
Philadelphia	4,026	10,420,430	3,997	12,167,470
St. Louis	1,150	4,195,295	1,387	4,373,122
Washington	1,385	3,505,363	1,086	2,425,311
Cleveland	1,490	2,918,270	1,491	1,666,777
Pittsburgh	1,054	2,908,720	747	2,683,736
Detroit	1,183	2,090,700	1,076	1,938,100
Milwaukee	756	1,961,298	615	1,469,971
Kansas City	1,806	1,904,780	1,458	1,264,100
Buffalo	813	1,616,497	950	2,344,299
Minneapolis	1,720	1,512,131	1,433	1,281,275
Los Angeles	875	1,119,587	755	1,034,651
Cincinnati	1,140	1,112,124	964	1,220,315
New Orleans	864	987,210	754	680,760
St. Paul	542	797,538	495	509,341
Louisville	1,263	791,527	1,033	821,508
Toledo		765,530	....	465,655
Allegheny	362	571,125	319	572,625
Omaha	410	404.294	530	784,623
Totals for 20 cities		$135,649,484	....	$98,660,254

These figures are in all respects interesting and encouraging, but they become simply phenomenal when we examine them in detail and then see that of a total increase of about $37,000,000 for the given 20 cities over $33,000,000 of that amount must be credited to Greater New York! As a center of building operations the metropolis dwarfs any other city in the country to a condition of microscopic insignificance. It is equal to more than six Chicagos and nearly seven Philadelphias. What a "local" market!

Of course not all of the $84,000,000 worth of new buildings projected in New York will be instantly carried out; and even with the big proportion that will be promptly undertaken some time must elapse before the money expenditure involved will be distributed for labor and materials. But the statistics are the forerunners of actual activity. They may safely be taken as the beginning of unusually brisk conditions.

The Sloss-Sheffield Steel & Iron Company.

While the authorized capital of the Sloss-Sheffield Steel & Iron Company is $20,000,000 of common and preferred stock, in equal amounts, there will be issued $6,700,000 of 7 per cent. preferred stock and $7,500,000 of common stock, subject, as stated before, to a first mortgage of $2,000,000 6 per cent. bonds and a general mortgage of $1,835,000 4½ per cent. bonds. There will be retained in the treasury $2,500,000 of common stock and $3,300,000 of preferred stock. This is to be used to provide for improvements, among the first of which will be the building of coke ovens on the coal property in close proximity to the Sheffield district. The Sloss Company themselves are just completing additional ovens. The steel plant contemplated will probably be erected in the Birmingham district, and it is stated that it will have a capacity equal to that of the Ensley plant, now approaching completion.

We understand that Archer Brown has been influential in carrying through the negotiations, and that Rogers, Brown & Co. will probably be the distributing agents of the product of the new consolidation, whose plan has been oversubscribed.

A Topeka dispatch says that, according to the report of Secretary Coburn of the State Board of Agriculture, the Kansas corn crop this year will be more than 340,000,000 bushels. The largest previous yield was in 1889, when the total was 270,000,000 bushels. Mr. Coburn's report was based on the statements of 1500 correspondents, located in all of the townships in the State. The wheat yield is not so large as a year ago. The total of winter wheat is 33,231,754 bushels and of spring wheat 975,435 bushels. The oat crop is the largest since 1895, the total being 27,338,425 bushels. The yield of other crops is: Rye, 1,600,532 bushels; barley, 3,542,220 bushels; flax, 1,291,073 bushels. The potato crop is reported as the largest in the history of the State, and the condition of other growing crops is given as more favorable than ever before.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING AUGUST 9, 1899.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
$47,100,000	Am. S. & W., Common	27,948	58⅜-60¼	58⅜-59	57¾-57⅞	57⅞-58¾	57¾-59	58⅛-59¼
38,150,000	Am. S. & W., Pref. (7 % Cu.)	5,650	-97¾	97¾-98	97⅞-98	97¾-98	97¾-98⅛	98 -98⅛
9,250,000	Col. Fuel and Iron	45,016	47⅝-48¾	47⅝-50⅛	49⅛-50⅝	48⅛-49⅛	48¼-50	49¾-51
46,484,300	Federal Steel, Common	12,930	59 -59¾	59½-60¼	59⅜-60	59 -60	-59⅝	59⅛-59¾
53,253,500	Federal Steel, Pref. (6 % Non-Cu.)	2,115	81⅞-82	-82¼	.....	81 -81¼	-81	-81¾
20,000,000	Tennessee Coal and Iron	52,005	76 -79⅛	78 -80¾	78¼-79¾	77¼-79¼	78 -79	78¾-79
7,974,550	Cambria Iron, Phila*	614	-45½	-45¼	-45¼	-45	-45⅛	-45⅛
16,000,000	Cambria, Steel***	1,582	.....	22 -22⅛	22⅛-22⅛	22 -22¼	22 -22¼	-23¼
5,000,000	Penna. Common, Phila	.....	.....	.....	.....	.....	.....	.....
1,500,000	Penna. Pref., Phila	3	88 -89	.....	.....	.....	.....	.....
28,000,000	Tin Plate Common, New York	6,702	42¼-42⅛	42 -42⅛	-42	41¼-42	40⅛-41	41 -42
18,000,000	Tin Plate Pref., N. Y. (7 % Cu.)	1,920	87⅛-88	87⅛-87⅝	.....	-87¼	.....	-87
28,000,000	Tin Plate Com., Chic.	2,655	42 -42½	42 -42⅝	42 -42⅛	41⅛-42¼	40⅛-41	.....
18,000,000	Tin Plate Pref., Chic. (7 % Cu)	185	.....	.....	-88	.....	86 -88	.....
32,000,000	National Steel Common, Chic.	2,260	53⅛-54	54 -54⅛	54 -54⅛	53⅞-54	53¾-54	.....
27,000,000	National Steel Pref., Chic. (7% Cu)	2,491	94 -94¾	94½-95	-95	-95	.....	96 -96¾
32,000,000	National Steel, Common, N. Y.	5,805	53⅛-54	54 -54⅜	54 -54¼	53¾-54	53¾-54	53¾-54
27,000,000	Nat'l Steel, Pref., N. Y., (7 % Cu.)	3,780	93½-94¾	94½-95	-94⅛	95¼-95½	95¾-96	-96
7,500,000	Bethlehem Iron†	.....	.....	.....	.....	.....	.....	.....
15,000,000	Beth. Steel, Par $50, $1 paid in.	520	.....	22¼-22⅜	-22½	-22¼	.....	-22¼
12,500,000	Pressed Steel, Common	4,750	57 -58⅜	56¾-57⅛	57 -57⅛	57 -58	57 -58	57⅛-58¼
12,500,000	Pressed Steel, Pref. (7 % Non-Cu.)	2,924	88 -89	-87¾	88¼-88¾	88¼-88¾	88⅛-88⅜	88¼-89¼
19,000,000	Am. Steel Hoop, Common	5,575	34½-35¼	34½-34⅞	34¼-34½	34⅛-34½	-34½	34½-35
14,000,000	Am. Steel Hoop, Pref. (7 % Cu.)	3,259	78¾-79	78½-79⅜	.....	78½-79½	-78¾	-79
29,000,000	Am. Car & Foundry, Common	7,082	17¾-18	18¼-18¾	18 -18⅜	18 -18½	17 -18	-17⅞
29,000,000	Am. Car & F'd'y, Pref. (7% Cu)	5,816	66⅛-66⅞	66½-67	66⅜-68	66 -67½	65 -66	66 -66⅝

* Par $50. ** Par $100 *** $1.50 per share paid in. † 6 % guaranteed by Beth. Steel Co. Late Philadelphia and Chicago sales by telegraph.

Bonded Indebtedness: Am. S. & W., $730,000; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., $13,200,000 Illinois 5 %, $7,417,000 E. J. E. R. R. 5 %, $1,600,000 Johnson 6 %, $6,732,000 D. & I. R. R. R 5 % $1,000,000 2d D. & I. R. R. R. 6 %, $10,000 land grant D. & I. R. R. R. 5 %; National Steel, $3,561,000 6 %; Tennessee C, I. & R. R. Co., $8,367,000 6 %, $1,114,000 7 %, $1,000,000 7 % cu. pref.; Pennsylvania Steel: $1,000,000 Steelton 1st; $2,000,000 Sparrow's Point 1st, $4,000,000 consolidated, both plants; Bethlehem Iron, $1,351,000 5 % maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co.

Fluctuations in the English Market.

In a mild way the trade has followed with interest the capers of the quotations of pig iron warrants in England. The following table summarizes the movement in Scotch warrants and Middlesborough warrants as cabled to the Metal Exchange:

	Noon.		Closing.	
Scotch Warrants.				
August 9	67s.	4d.	.....	
" 7	.....		70s.	5d.
" 4	67s.	11d.	Holiday.	
" 3	68s.	5d.	66s.	..
" 2	70s.	5d.	69s.	7d.
" 1	70s.	9d.	71s.	10d.
July 31	73s.	..	72s.	3d.
" 28	73s.	3d.	74s.	1d.
" 27	74s.	10d.	74s.	2d.
" 26	74s.	10d.	74s.	10d.
" 25	75s.	6d.	74s.	10d.
" 24	73s.	11d.	74s.	10d.
" 21	72s.	2d.	72s.	7d.
" 20	71s.	10d.	71s.	11d.
" 19	71s.	10d.	71s.	10d.
" 18	71s.	8d.	71s.	6d.
" 17	71s.	8d.	71s.	11d.
Middlesborough.				
August 9	.....		64s.	4½d.
" 7	68s.	4½d.	.....	
" 4	67s.	..	Holiday.	
" 3	66s.	7½d.	66s.	10½d.
" 2	70s.	1½d.	68s.	1½d.
" 1	70s.	10½d.	71s.	3d.
July 31	72s.	9d.	72s.	3d.
" 28	73s.	3d.	73s.	9d.
" 27	74s.	9d.	74s.	..
" 26	74s.	10½d.	75s.	1½d.
" 25	75s.	1½d.	75s.	1½d.
" 24	74s.	..	74s.	6d.
" 21	72s.	4½d.	73s.	3d.
" 20	72s.	6d.	72s.	4½d.
" 19	71s.	1½d.	72s.	1½d.
" 18	71s.	4½d.	72s.	1½d.
" 17	71s.	7½d.	71s.	10½d.

The sudden rise is attributed to a squeeze of the shorts.

The summary of the savings bank reports of New York State for the year ended June 30, 1899, makes a remarkably favorable showing. In the 12 months the increase in the total resources of the banks, as compared with June 30, 1898, was $79,226,576, and the increase in the amount due depositors was $71,230,802. The increase in the first half of 1899 was $42,298,910, or nearly equivalent to the increase for the entire year 1898. The number of open accounts increased in the year 107,213, of which 65,191 were added in the latter half of the fiscal year. The total resources of the banks on June 30 last was $923,000,000.

Seven short coal roads of Western New York and Pennsylvania have been merged into one railway with a course of 350 miles through the bituminous coal fields and timber lands between Pittsburgh and Rochester, N. Y. The road will be known as the Pittsburgh, Shawmut & Northern Railroad. Practically all of the bond issue of $6,000,000 has been placed. The bonds bear interest payable in gold and are secured by a first mortgage. Nearly $1,000,000 bonds have been placed among Chicago capitalists. The capital stock is to be $12,000,000, but not all of this will be issued for the present. The lines included in the deal are: The Buffalo, St. Mary's & Southwestern Railroad, the Central New York & Western Railroad, the Claremont, Mount Jewett & Northern Railroad, the Mill Creek Valley Railroad, the Central New York & Northern Railroad, the Clarion River Railroad, the Smethport & Olean Railroad. The officers are: John Byrnes, president; Henry Marquand and Frank S. Smith, vice-presidents; Lewis F. Wilson, general counsel; Harry McGough, secretary, and Henry S. Hastings, treasurer.

Iron and Industrial Stocks.

On the whole the market for iron stocks has been quiet and values have not shown much movement. There is, however, a general strength, which is due largely to the fact that banking interests are reported to be more favorable to stocks of this character than they have been. The large earnings are beginning to tell. As we go to press the statement of the American Steel & Wire Company had not yet been issued.

	Bid.	Asked.
International Silver, Common	14	16
Otis Elevator, Common	33½	35
Otis Elevator, Preferred	94	95
H. R. Worthington, Preferred	109	111
Cramp's Shipyard Stock	83	86
Pratt & Whitney, Common	3½	...
Pratt & Whitney, Preferred	38	48
E. W. Bliss, Common	138	...
E. W. Bliss, Preferred	125	...
U. S. Projectile	95	100
Barney & Smith Car, Common	21	25
Barney & Smith Car, Preferred	81	86
International Pump, Common	26½	27
International Pump, Preferred	73½	74
Republic Iron & Steel, Common	23	23¼
Republic Iron & Steel, Preferred	72	72¼
Diamond State Steel	7¼	7⅝
Tidewater Steel	13¾	13⅞
Warwick Iron & Steel (par, $10)	12½	...

The Merchants' Association of New York are arranging for an exhibit of the various manufactured products of the State, to be shown under their auspices in an appropriate building at the fifty-ninth annual State Fair, at Syracuse, N. Y., during the week of September 4-9, inclusive. Arrangements have been perfected with the railroad companies for transportation of all goods to Syracuse and return, without cost to the exhibitors, together with free transportation for one or more attendants, as may be required. No charge will be made for space occupied in the building to those exhibiting under the auspices of the association. Thus the only cost to intending exhibitors will be the preparation of their exhibits and the expense of attendants during the fair week. For space or any information, application should be made to G. W. J. Angell, general manager, Greater New York exhibit, the Merchants' Association of New York.

HARDWARE.

Condition of Trade.

THERE is nothing in the situation to indicate any cessation in the advancing values of Hardware and kindred lines. There is some apprehension expressed by members of the trade as to the effect of increased cost of goods upon the future. Manufacturers of various lines state that a conservative course has been pursued, and that the advances made have not been commensurate with the increased cost of raw material. The trade are showing their confidence in present conditions by purchasing according to their prospective needs, and the distribution of goods is large. It is the general expression of jobbers that for the season trade has been unusually active, and that for the month of July the falling off of business has not been what is generally expected. In some lines an increase over the preceding month has been noticed since August 1. The difficulty of obtaining goods in certain lines promptly from factories continues to be an annoying feature of the trade. Conditions are favorable for a brisk fall trade.

Chicago.

(By Telegraph.)

The demand for Shelf Hardware continues exceptionally good for the season. The time, however, is now approaching for an increased volume of business to cover fall requirements, and it remains to be seen whether any of this business has been anticipated, or whether a much larger trade will be done than that of any previous years. The outlook is certainly extremely encouraging from the agricultural sections of the West. Crop prospects are of the best. The corn crop will surpass that of any previous year. The good outlook for corn is already having its effect on some classes of Hardware. Heavy orders have been received for Scoop Shovels, Corn Huskers, &c., and fresh stocks of such goods have been purchased by some of the jobbers, notwithstanding they had originally laid in much heavier stocks than usual. An excellent demand is also reported for all the usual kinds of Hardware. Building continues active, and this causes a heavy trade in Builders' Hardware and a large line of materials. It is noted that the scarcity of seasonable goods the past few months has scared some of the retail trade into trying to make preparations for next spring. Efforts are being made to place orders now for delivery in March. Jobbers, however, are not disposed to take business of this kind, as they cannot determine what the prices of such goods may be when they make their own contracts. Heavy Hardware jobbers report a continuance of the activity in their line. They are now receiving numerous pickup orders from manufacturers and other large consumers who are not getting sufficiently rapid deliveries on contracts placed with mills.

St. Louis.

(By Telegraph.)

There is no mistake about August jobbing business opening up finely. Salesmen are again in the field and visits to the trade are productive of good sales. New stocks are being sold to a surprising extent. As illustrating the supreme confidence in the times a Hardwareman from a Western State was met with to-day who had bought a new stock, which was boxed and held, pending decision as to town the buyer would locate in. Locally the department stores are said to have made serious inroads on the Hardware trade, and that other lines are sympathetically affected. It may be mentioned that Pianos have lately been added to the stock of a large St. Louis department store. New prices continue to be named on goods heretofore exempt from advances, and discounts shortened up still more on lines affected in the past. Wooden Wheelbarrows sustain another rise of $1 per dozen, and Tubular Steel Tray Barrows were advanced 20 per cent. August 1. Steel Wedges have been on the go for several weeks, with new figures likely to follow. The Heavy Hardware trade is in good shape, and especially in the Bar Iron line it is flourishing. In fact, the volume of sales is way beyond that looked for. All kinds of wagon stocks are in active movement. Elliptic Springs have advanced several cents per pound. Collections are reported excellent.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—July trade has been somewhat larger in volume than last year, though in actual amount of goods handled there has not been a large increase, the difference covering the advance in prices. The demand for Hardware in all lines has been active, and specially so in Builders' Hardware, Tools, &c., showing a very healthy condition of trade.

Thus far there has been no tendency toward a falling off in demand on account of the advance in prices, nor is it now probable that this feature of the situation will affect trade to any considerable extent for some time to come. The feeling is general that these higher prices are to run well on into 1900, anyhow; and, besides, everybody is busy and as a rule is prospering, and is therefore willing to pay some higher prices for what he wants, and upon the whole there is really as little complaint on prices as is often heard.

The spring wheat harvest is just beginning in Southern Minnesota, and in a week will be general throughout a considerable part of Minnesota, as well as throughout South Dakota. The crop is a fair one, and the probabilities now are that the Northwest will be in good condition for fall trade and collections. Collections are now as good as are usually experienced at this season.

Notes on Prices.

Wire Nails.—The conditions existing last week in the Wire Nail market continue. Demand is rather unusual for the season and firmness characterizes the situation. Unchanged quotations are as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots	$2.50
To " in less than carload lots	2.52½
To retailers in carload lots	2.65
To " in less than carload lots	2.75

New York.—The distribution of Wire Nails to the local trade is keeping up in fair volume. Quotations remain as before:

To retailers, carloads on dock	$2.80
To " less than carloads on dock	$2.90 to 2.95
Small lots from store	2.95 to 3.00

Chicago, by Telegraph.—Manufacturers are enjoying a fair trade for the season, which is running in excess of volume of business in previous years. All of the mills of the American Steel & Wire Company in this vicinity are running except at Anderson, Ind. This is unusual, as it is customary for the Nail factories to close down more or less during the summer. Prices are firm, but unchanged, single carload lots being held at $2.80, Chicago, and small lots at $2.90.

St. Louis, by Telegraph.—No sales movement of note is seen this week, but makers are said to be doing a most satisfactory business, the time of the year being considered. Single cars to retailers are quoted at $2.85, St. Louis, and smaller quantities at $2.95, base, from stock.

Pittsburgh.—We are advised by the jobbing trade that there is a good demand for Wire Nails from retailers, who are placing good sized orders to meet actual wants, and also in view of another probable advance in prices, on account of sharp advances in Bessemer Pig Iron and Billets during the past week. It is claimed that the present price of Wire Nails is on a conservative basis, in view of the very large advances in prices of raw materials, Billets having gone up fully $20 a ton. We quote: To jobbers in carload lots, $2.50; to jobbers in less than carload lots, $2.52½, to retailers in carload lots, $2.65; to retailers in less than carload lots, $2.75, all f.o.b. Pittsburgh; terms 30 days net, to which freight to destination should be added.

Cut Nails.—No further change in the price of Cut Nails is announced. The market has a firm tone and the movement of goods is satisfactory. The following quotations are f.o.b. Pittsburgh:

To jobbers in carload lots	$2.15
To " in less than carload lots	2.20
To retailers in carload lots	2.20
To " in less than carload lots	2.35

New York.—Business in Cut Nails for July showed but a slight falling off in comparison with the preceding month. Prices are unchanged, as follows: For carload lots on dock to the small trade, $2.25 to $2.30; small lots from store, $2.45 to $2.50.

Chicago, by Telegraph.—The condition of business continues the same as previously reported and jobbers quote small lots from stock at $2.30.

St. Louis, by Telegraph.—No further advance noted and sales take place at $2.35, base, small lots out of stock.

Pittsburgh.—The volume of business in Cut Steel Nails is only fair, but we are advised by jobbers that they are having quite a good demand from the small trade for Iron Cut Nails, for which higher prices are obtained than for Steel Nails. Prices on Cut Nails are firm and some mills have advanced quotations. We quote: To jobbers in carload lots, $2.15; to jobbers in less than carload lots, $2.20; to retailers in carload lots, $2.20; to retailers in less than carload lots, $2.35, all f.o.b. Pittsburgh. We are advised that the mills in the Wheeling district are quoting on the basis of $2.25 for carload lots, f.o.b. makers' mill, Wheeling; terms 60 days, less 2 per cent. cash ten days.

Barb Wire.—The market for Barb Wire is sluggish so far as the demand is concerned, but prices are firm, f.o.b Pittsburgh, net cash 30 days:

To jobbers in carload lots, Painted	$2.60
" " Galvanized	3.10
" in less than carload lots, Painted	2.62½
" " " " " Galvanized	3.12½
To retailers in carload lots, Painted	2.75
" " Galvanized	3.25
" in less than carload lots, Painted	2.85
" " " " " Galvanized	3.35

Chicago, by Telegraph.—The volume of business now being taken by manufacturers shows very little decrease from the average for the past three months. The demand for all classes of Plain Wire is surprising. Barb Wire is running a little lighter than it has been, but the falling off is not serious. Prices are maintained at $2.65, Chicago, for single carload lots of Plain Annealed Wire, $2.90 for Painted Barb Wire and $3.40 for Galvanized Wire, with 10 cents per 100 pounds added for small lots.

St. Louis, by Telegraph.—The trade is no doubt in good volume, the season considered. No heavy stocking up is reported at present figures, but purchases go on as needed. To retailers single car lots are quoted at $2.95 for Painted and smaller quantities at $3.05. Galvanized is held at 50 cents advance.

Pittsburgh.—The mills and jobbers report a fair volume of business in Barb Wire considering the season. The tone of the market is strong and owing to further sharp advances in raw material another advance in price of Wire is expected before long. We quote at $2.60 for Painted in carload lots to jobbers and $2.85 to the small trade in less than carload lots, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh; terms net 30 days, to which freight to destination is added.

Smooth Wire.—The demand for Wire of all sizes keeps up in a remarkable degree and no accumulation of stocks has taken place at factories. Former prices remain in force, quotations being as follows, f.o.b. Pittsburgh, 30 days net cash:

To jobbers in carload lots	$2.35
To " in less than carload lots	2.37½
To retailers in carload lots	2.50
To " in less than carload lots	2.60

Pittsburgh.—There is a good demand for Smooth Wire considering the season and the tone of the market is strong, with a probability of higher prices before long. We quote: To jobbers in carload lots, $2.35; to jobbers in less than carload lots, $2.37½; to retailers in carload lots, $2.50; to retailers in less than carload lots, $2.60, all f.o.b. Pittsburgh; terms net 30 days. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, $1.10.

Cast Butts.—Manufacturers of Cast Iron Butts have advanced prices about 10 per cent. Loose Pin Butts are now quoted at 70 and 5 to 70 and 10 for fair quantities, Loose Joint, both broad and narrow, now being 50 to 50 and 10.

Coes' Wrenches.—Coes' Genuine Wrenches (L. Coes & Co.) have been advanced under date of August 4 from 40 per cent. base to 33⅓ per cent. base, with the same extras as heretofore.

Rotary Flour Sifters.—Rotary Flour Sifters have been advanced to $10 a gross from $8.50 for the regular size, the smaller kind being now $9 per gross instead of $7.50.

Gravity Blind Hinges.—Stanley's Steel Gravity Blind Hinges, listed $1.20 per dozen sets, have been advanced to discount 20 and 10 per cent.

Set and Cap Screws.—Set Screws, Iron or Steel, have been advanced to 75 to 75 and 5 and Square and Hexagon Cap Screws to 70 to 70 and 5.

Wire Picture Cord.—Wire Picture Cord, full length and full number of strands, has been advanced to 70 to 70 and 10 per cent. discount.

Builders' and Miscellaneous Hardware.—Under date of July 28 all the leading manufacturers of Builders' and Miscellaneous Hardware advanced their prices 20 per cent. January 30 of this year they advanced these goods 10 per cent. and on April 27 made another advance of 10 per cent. on list prices as they then existed. On July 1 a series of classified net prices were adopted by the manufacturers, whereas previously there had been no classification. The 20 per cent. advance of July 28 is from the basis of the universal classified prices in force July 1, but likewise includes all unclassified goods. The previous advances did not, we are advised, more than cover the increased cost of material and in some cases did not wholly cover that, so that the last advance is said to be the first one that pretends to give any better profit to the manufacturer, it being understood that the product had long been selling at extremely low prices.

Blount Door Check.—Yale & Towne Mfg. Company, 9-11 Murray street, New York, on August 1 advanced the price of their Blount Door Check 10 per cent.

Handles for Mrs. Potts' Irons.—The makers of Mrs. Potts' Sad Irons have advanced the price of Handles 50 cents a gross, and are reported full of orders.

Chicago Spring Butt Company.—Chicago Spring Butt Company, Chicago, Ill., issue a circular under date August 1 announcing an advance of 5 per cent. on their manufactures on account of the increased cost of the raw materials.

Steel Goods.—The associated manufacturers of Farm and Garden Tools, under date of August 1, have issued new lists, in which they have grouped the different lines of Forks, Rakes, Hoes, &c., as shown by the various divisions given on the following pages. The discounts given with each group are designed for the retail trade, there being other levels of prices for intermediate and jobbing trade.

Standard List Prices for Domestic Trade.

Steel Goods Association,

AUGUST 1, 1899.

GROUP No. 1.

Two Tine Hay Forks, Standard Sizes.

Round or Oval Tines. On 4 to 5 ft. Straight Handles.

List Common Ferrules..	$8.50	$9.00	$9.50	$10.75	$12.00	$13.25
List Strap Ferrules....	10.30	10.80	11.30	12.55	13.80	15.05

When on Longer Handles, add as per Note "A" below.

Second Quality.

List Prices, less than above.....$0.90

Boys' Sizes.

On 4 or 4½ feet Straight Handles.

8½ inch Tine, Common Ferrule	$7.25
8½ inch Tine, Strap Ferrule	9.05
10 inch Tine, Common Ferrule	7.75
10 inch Tine, Strap Ferrule	9.55
When on 5 to 6 feet Handles, add for each 6 inches	.50
Bent Handles on any of above, add to List	.60

Fish Forks.

Round or Oval Tines, 6 to 8 inches. No Caps.

1 and 2 Tine, 4 to 4½ feet Handles, Common Ferrule	$7.00
3 Tine, 4 to 4½ feet Handles, Common Ferrules	9.00

Discount, 65 per cent.

GROUP No. 2.

Three Tine Hay Forks, Standard Sizes.

Round or Oval Tines. On 4 to 5 feet Straight Handles.

Tine Lengths.	11 in.	12 in.	13 in.
List ommon Ferrule	$10.20	$10.80	$11.40
List Strap Ferrule	12.00	12.60	13.20

When on longer Handles, add as per Note "A" below.

Second Quality.

List Prices less than above.....$1.20

Boys' Size, 10½ inch Tines.

On 4 or 4½ feet Straight Handles, Common Ferrule	$9.75
On 4 or 4½ feet Straight Handles, Strap Ferrule	11.55
When on 5 to 6 feet Handles, add for each 6 inches	.50
Bent Handles on any of above, add to list	.60

Sanford Diamond Tine Hay Forks.

2 Tine, 4 to 5 feet Straight Handles, Common Ferrule	$11.00
3 Tine, 4 to 5 feet Straight Handles, Common Ferrule	13.00

Discount, 66 2-3 per cent.

GROUP No. 3.

Four Tine Hay Forks.

Round or Oval Tines.

Tine Lengths.	12 in.	13 in
On 4 to 5 feet Straight Handles, List Common Ferrule	$14.40	$15.40
On 4 to 5 feet Straight Handles, List Strap Ferrule	16.40	17.40

Braced or Double Shank Forks, advance List Prices, $1.00.
When on longer Handles, add as per Note "A" below.
Bent Handles, add to above List..... $0.60

Second Quality.

List Prices less than above.....$1.85

NOTE "A."—Handle lengths.

Where 5 feet is the Standard Length, add to List Prices:

For 5½ feet Handles....	$0.50	For 7 feet Handles....	$2.50
For 6 feet Handles....	1.00	For 7½ feet Handles....	3.25
For 6½ feet Handles....	1.75	For 8 feet Handles....	4.00

Discount, 66 2-3 per cent.

GROUP No. 4.

Socket Four-Tine Forks.

Round or Oval Tines.

Section A—Hay Forks.

Handle Lengths.	4 ft.	4½ ft.	5 ft.	5½ ft.	6 ft.
11½ to 12 inch Tines	$18.25	$18.25	$18.25	$18.75	$19.25

Discount, 66 2-3 and 5 per cent.

Section B—Manure Forks.

Handle Lengths.	L 4 ft.	L 4½ ft.	Mall. D.	Wood D.
12 inch Tines	$21.00	$21.00	$22.25	$26.25

Discount, 70 per cent.

Section C—Spading Forks.

Handle Lengths.	L 4 ft.	Mall. D.	Wood D.
Heavy Angular Tines	$29.00	$30.50	$34.50

Discount, 70 and 5 and 5 and 2½ per cent.

GROUP No. 5.

Long Tine Hay, Header, Baler and Grain Forks.

Round or Oval Tines on 4 to 6 feet Bent Handles.

Section A—Three Tine Hay, Header and Baler.

Tine Lengths	14 in.	15 in.	16 in.
Hay and Header Forks, Com. Ferrule	$13.50	$14.75	$16.25
Hay Baler Forks, Common Ferrule	....	17.50	19.50

Discount, 67½ and 2½ per cent.

Section B—Four Tine Hay, Header and Baler.

Tine Lengths.	14 in.	15 in.	16 in.	18 in.
Hay and Header, Com. Ferrule, Regular	$17.75	$19.25	$21.25	$24.00
Hay and Header, Com. Ferrule, Deep Dish	....	21.25	23.25	....
Hay Balers, Com. Ferrule	....	22.00	24.50	....

Braced or Double Shank Forks, advance list prices, $1.25.
Narrow Spread, reduce list prices, $1.

Discount, 60 and 30 per cent.

Section C—Grain or Barley Forks.

Tine Lengths.	16 in.	17 in.	18 in.	20 in.
4 Tine Common Ferrules, without Bails	$22.00	$24.00	....	....
4 Tine Common Ferrules, with Bails	....	....	$28.00	$31.00
5 Tine Common Ferrules, with Bails	....	....	36.00	40.00
Deduct, if without Bails and Brace	....	....	....	.80

To all of above: Add for Strap Ferrules.....$2.00

To all of above: When on Handles	6½ ft.	7 ft.	7½ ft.	8 ft.
Add to above prices	$0.75	$1.50	$2.25	$3.00

Discount, 70 and 10 and 2½ per cent.

GROUP No. 6.

Four Tine Manure Forks.

Round or Oval Tines, All Bent Handles.

First Quality.

Long Handles, Common Ferrule, 11½ to 12 inch Tines	$16.75
Long Handles, Strap Ferrule, 11½ to 12 inch Tines	18.75
Mall. D. Handles, Common Ferrule, 12 to 13 inch Tines	18.00
Mall. D. Handles, Strap Ferrule, 12 to 13 inch Tines	20.00
Braced or Double Shank Forks, advance list prices	1.25
Above with Tines 14 inches long, advance	2.00

Second Quality.

List prices less than above.....$2.00

Third Quality.

Tines 11 to 11½ inches long. Half Polished. No Caps on Ferrules.

List prices less than First Quality List	$4.75
Add, if with Caps on Ferrules	.60
To any of above Forks: Add for Wood D. in place of Mall D. Handles	4.00

Discount, 70 per cent.

GROUP No. 7.

Five and Six Tine Manure Forks.

First Quality—Tines 12 to 13 inches long.

Round or Oval 5 Tine, Long Bent Handles, Common Ferrule	$25.25
Round or Oval 5 Tine, Long Bent Handles, Strap Ferrule.	27.25
Round or Oval 5 Tine, Mall. D. Bent Handles, Common Ferrule	26.50
Round or Oval 5 Tine, Mall. D. Bent Handles, Strap Ferrule	28.50
Round or Oval 6 Tine, Long Bent Handles, Common Ferrule	29.25
Round or Oval 6 Tine, Long Bent Handles, Strap Ferrule.	31.25
Round or Oval 6 Tine, Mall. D. Bent Handles, Common Ferrule	30.50
Round or Oval 6 Tine, Mall. D. Bent Handles, Strap Ferrule	32.50

Second Quality.

5 Tine Manure Forks less than above list	$2.50
6 Tine Manure Forks less than above list	3.25

Handles.

Of 4, 5 and 6 Tine Manure Forks.

When longer than 4½ feet advance list for each 6 inches	$0.50
Wood D Handles advance on above list of Mall. D	4.00

"Long" Handles are 4 to 4½ feet.

Tines—14 inches long.

Advance on 5 Tine Forks per doz. list	$2.50
Advance on 6 Tine Forks per doz. list	3.00

Six Tine City Manure Forks.

14 inch Oval Tines, Heavy. Wood D Handles, Strap Ferrule $40.00

Discount, 70 per cent.

GROUP No. 8.

Spading Forks.

Angular or Flat Tines.

Extra Heavy 4 Tine, Common Ferrule, Mall. D Handles	$26.00
Heavy or Regular, 4 Tine, Common Ferrule, Mall. D Handles	24.25
Heavy or Regular, 3 Tine, Common Ferrule, Mall. D Handles	32.50
Light Weight, 4 Tine, Common Ferrule, Mall. D Handles	23.00
Light Weight, Half Polished, 4 Tine, Common Ferrule, Mall. D Handles	21.75

The "Light" are 5 pounds per doz. less weight than Heavy.

Strap Ferrule Spading Forks, advance list	2.00
Wood D Handles, advance list	4.00
Long 4 and 4½ feet Handles less than Mall. D	1.25

Second Quality Spading Forks.

List prices less than above..... $3.00

Discount, 70 and 5 per cent.

GROUP No. 9.

Potato Digging Forks.

Manure Fork Weights.

Round or Oval, 5 Tine, Long Bent Handles, Common Ferrule	$17.00
Round or Oval, 5 Tine, Long Bent Handles, Strap Ferrule.	18.50
Round or Oval, 5 Tine, Mall D. Bent Handles, Common Ferrule	18.00
Round or Oval, 5 Tine, Mall. D. Bent Handles, Strap Ferrule	19.50
6 Tine Forks advance list over 5 Tines	4.00
8 Tine Forks advance list over 5 Tines	10.00
Wood D Handles advance over Mall. D	4.00
Handles longer than 4½ feet advance list each 6 inches	.50

All Tines are 10 to 11 inches.

Discount, 65 per cent.

GROUP No. 10.

Stone Picking Forks.

Square Tines.

4 Tine, polished, 4½ feet Bent Handles, Common Ferrule..$13.50
5 Tine, polished, Mall. D Bent Handles, Common Ferrule.. 15.00
6 Tine, polished, 4½ feet Bent Handles, Light, Common Ferrule 16.50
6 Tine, polished, 4½ feet Bent Handles, Heavy, Common Ferrule 18.00

Manure Fork Weight.

Round or Oval Tines.

5 Tine, polished, Long Bent Handles, Common Ferrule...$14.00
5 Tine, polished, Long Bent Handles, Strap Ferrule..... 15.50
5 Tine, polished, Mall. D Bent Handles, Common Ferrule. 15.00
5 Tine, polished, Mall. D Bent Handles, Strap Ferrule.... 16.50
Six Tine Forks advance list..... 2.00
Wood D Handles advance on above list of Mall. D..... 4.00
Handles longer than 4½ feet advance list each 6 inches... .50
All Tines are 9 to 10 inches long.

Discount, 65 per cent.

GROUP No. 11.

Garden Hoes.

Garden or Field Socket, 6 to 8 in. Blade.....$14.75
Garden or Field Shank, 6 to 8 in. Blade..... 13.25
Swan Neck or Washington County, add to list..... 1.50
Black "Cold Rolled" Garden, 6 to 8 in. Blade, less list.. .40
Garden or Field Socket Curved Blade, "Smith" Patent.. 14.75
Garden or Field Shank Curved Blade, "Smith" Patent... 13.25
Blades 8½ inches wide, add to list..... 1.00
When on Handles longer than 4½ ft., add for each 6 inches 1.00
Blades not to exceed 5 inches in depth.
Shanks not to exceed 7-16 inch in diameter.

Second Quality.

List Prices less than above.....$1.25

Discount, 75 and 2 per cent.

GROUP No. 12.

Meadow and Rhode Island Hoes.

Shank, 8 in. Blade, 4 to 4½ ft. Field Hoe Handles.....$14.25
Shank, 8½ in. Blade, 4 to 4½ ft. Field Hoe Handles..... 14.75
Shank, 9 in. Blade, 4 to 4½ ft. Field Hoe Handles..... 15.25
Shank, 9½ in. Blade, 4 to 4½ ft. Field Hoe Handles..... 16.00
Shank, 10 in. Blade, 4 to 4½ ft. Field Hoe Handles..... 16.75
Socket Pattern of same, add to list..... 1.75
Blades not to exceed 4 inches in depth.
Shanks not to exceed 7-16 inch in diameter.
When on longer Handles, add for each 6 inches..... 1.00

Discount, 75 and 5 and 2½ per cent.

GROUP No. 13.

Southern Meadow Hoes.

Shank, 8 in. Blade, 5 ft. Handles.....$15.25
Shank, 8½ in. Blade, 5 ft. Handles..... 15.75
Shank, 9 in. Blade, 5 ft. Handles..... 16.25
Shank, 9½ in. Blade, 5 ft. Handles..... 17.00
Shank, 10 in. Blade, 5 ft. Handles..... 17.75
Socket Pattern of same, add to list..... 1.75
Blades not to exceed 4 inches in depth.
Shanks not to exceed 7-16 inch in diameter.
When on longer Handles, add for each 6 inches..... .75

Discount, 75 and 5 and 2½ per cent.

GROUP No. 14.

Mortar and Street Hoes.

Shank, 9 in. Blade, polished, 6 ft. Handles.....$21.75
Shank, 10 in. Blade, polished, 6 ft. Handles..... 23.50
Shank, 10½ in. Blade, black, 6 ft. Handles..... 25.00
Shank, 11 in. Blade, polished, 6 ft. Handles..... 26.00
Shank, 11¼ in. Blade, polished, 6 ft. Handles..... 27.00
Shank, 12 in. Blade, polished, 6 ft. Handles..... 28.00
Mixers, Blades with Holes in, add to list..... 2.50
Socket Pattern, add to list..... 2.50
When on Handles longer than 6 ft., add for each 6 inches. .75
Bolting Sockets or Shanks, add..... 2.00

Discount, 75 and 7½ and 2 per cent.

GROUP No. 15.

Planter Hoes, Regular Pattern.

Shank, 6 and 6½ in. Blade, 4½ ft. Handles.....$16.50
Shank, 6 and 6½ in. Blade, 5 ft. Handles..... 17.25
Shank, 7 in. Blade, 5 ft. Handles..... 18.00
Shank, 7½ in. Blade, 5½ ft. Handles..... 19.50
Shank, 8 in. Blade, 5½ ft. Handles..... 20.25
Shank, 8½ in. Blade, 5½ ft. Handles..... 21.25
Shank, 9 in. Blade, 5½ ft. Handles..... 22.00
Shank, 10 in. Blade, 5½ ft. Handles..... 24.00
Socket Pattern of same, add to list..... 2.50
When on longer Handles, add for each 6 inches..... .75
The following shall be the maximum weight of Steel per doz. for Planter Hoes:

Sizes	6	6½	7	7½	8	8½	9	10
Pounds	20	22	24	26	28	30	32	34

Planter Hoe Shanks shall not exceed ⅝-in. in diameter.
The following shall be the maximum depth of Blades in Planter Hoes:

Sizes	6	6½	7	7½	8	8½	9	10
Inches	5¾	5⅞	6	6⅛	6¼	6⅜	6½	6⅝

Sandwich Islands Planter Hoes.

Those with shanks or necks of sockets larger than ⅝-in. diameter:
Add for the ¾ in. diameter..... $4.00
Add for each additional ⅛ inch diameter..... 2.00

Discount, 70 and 30 per cent.

GROUP No. 16.

Straight Shank Planter or Tobacco Hoes.

Blade polished one-third only.
Blade and Shank same size and weight as Regular Planter.
List Prices same as Regular Planter Shank.

Discount, 75 and 20 per cent.

GROUP No. 17.

Cotton (Light Planter) Hoes.

Shank 6 and 6½ inch Blade, 4½ feet Handles..... $13.75
Shank 6 and 6½ inch Blade, 5 feet Handles..... 14.50
Shank 7 inch Blade, 5 feet Handles..... 15.25
Shank 7½ inch Blade, 5 feet Handles..... 16.00
Shank 8 inch Blade, 5½ feet Handles..... 17.50
Shank 8½ inch Blade, 5½ feet Handles..... 18.50
Shank 9 inch Blade, 5½ feet Handles..... 19.25
Shank 10 inch Blade, 5½ feet Handles..... 21.00
Socket Pattern of same, add to list..... 2.50
When on longer Handles add for each 6 inches..... .75
Cotton Hoe Shanks shall not exceed ½ inch in diameter.
The following shall be the maximum weight of Steel per dozen for Cotton Hoes:

Sizes	6	6½	7	7½	8	8½	9	10
Pounds	15	16	17	18	19	20	22	23

The following shall be the maximum depth of Blades in Cotton Hoes:

Sizes	6	6½	7	7½	8	8½	9	10
Inches	5¼	5⅜	5½	5⅝	5¾	5⅞	6	6⅛

Extra for Riveting or Nailing Shanks in Hoes, $1.00 per dozen list.

Discount, 75 and 10 and 10 and 5 and 2 per cent.

GROUP No. 18.

Rough Finish Shank Cotton Hoes.

Shanks and Blades straight or curved and no heavier than regular Cotton Hoes.
Blades polished one-third only, weight as Regular Cotton Hoes.
List and Conditions same as Regular Cotton Hoes.

Discount, 75 and 12½ per cent.

GROUP No 19.

Cotton Chopper Hoes.

Shank 8 inch Blade, 5½ feet Handles..... $17.50
Shank 8½ inch Blade, 5½ feet Handles..... 18.50
Shank 9 inch Blade, 5½ feet Handles..... 19.25
Shank 10 inch Blade, 5½ feet Handles..... 21.00
Blades polished one-third only and not exceeding 4 inches deep.
Shanks not exceeding ½ inch in diameter.

Discount, 75 and 10 and 7½ per cent.

GROUP No. 20.

Ladies' Cotton Hoes.

Shank 6 and 6½ inch Blade, 4½ feet Light Handles..... $13.75
Shank 6 and 6½ inch Blade, 5 feet Light Handles..... 14.50
Shank 7 inch Blade, 5 feet Light Handles..... 15.25
Shank 7½ inch Blade, 5 feet Light Handles..... 16.00
Shank 8 inch Blade, 5½ feet Light Handles..... 17.50
Shank 8½ inch Blade, 5½ feet Light Handles..... 18.50
Socket Pattern of same add to list..... 1.75
Blades Garden Hoe Weight with 7-16 inch Shank.
When on longer Handles, add for each 6 inches..... .75

Discount, 75 and 10 and 7½ per cent.

GROUP No. 21.

Toy, Ladies' and Boys' Hoes.

Toy Shank, Blades 4 inches, Shank 5-16 inch, 4 feet Handles $9.50
Ladies' Shank, Blades 5 inches, Shank 5-16 inch, 4 feet Handles 10.00
Boys' Shank, Blades 6 inches, Shank 7-16 inch, 4 feet Handles 12.00
Ladies' and Boys' Hoe Blades not to exceed 4 inches in depth.

Onion, Turnip, Berry or Tobacco Hoes.

Similar Hoes with various names.

Shank 6 to 7½ inch Blade, 4 1-3 feet Handles..... $13.00
Socket 6 to 7½ inch Blade, 4 1-3 feet Handles..... 14.50
Same with Blade 2 inches deep less than above..... .50
Weight of Blade and Shank not exceeding a Garden Hoe.
Blades not exceeding 7½ inches wide and 3½ inches deep.

Discount, 70 and 10 and 10 per cent.

GROUP No. 22.

Weeding Hoes and Rakes.

Steel Round Point, Riveted Shanks..... $8.00
Steel Square Point, Riveted Shanks..... 8.00
Steel Two Point, Riveted Shanks, Polished Blade..... 10.00
Steel Two Point, Riveted Shanks, Polished Blade, extra heavy drawn points..... 13.00
Steel Three Point, Riveted Shanks, Polished Blade..... 10.50
Steel Five Point, Riveted Shanks, Polished Blade..... 11.25
Steel Four Point, Welded Shanks, Welded Blade, Polished 12.50
Steel Six Point, Welded Shanks, Welded Blade, Polished 14.00
Handles 4½ feet Garden Hoe size.

Discount, 75 per cent.

GROUP No. 23.

Potato Hooks.

Goose Neck or Bent Heads, 4½ feet Handles.

Round or Oval, 4 Tines, Regular Weight, or Broad Oval, Light Weight..... $12.00
Round or Oval, 5 Tines, Regular Weight, or Broad Oval, Light Weight..... 16.50
Round or Oval, 6 Tines, Regular Weight, or Broad Oval, Light Weight..... 18.00
Angular or Oval Back, Flat or Broad Oval, 4 Tine..... 15.00
Angular or Oval Back, Flat or Broad Oval, 4 Tine, Heavy 16.50
Angular or Oval Back, Flat or Broad Oval, 5 Tine, Extra Heavy..... 20.00
Angular or Oval Back, Flat or Broad Oval, 6 Tine, Extra Heavy..... 23.50
Swan Neck on any of above, add to list..... 1.50
Handles longer than 4½ feet, add for each 6 inches..... 1.00
Flat, 4 Tine, Light Weight..... 13.50
Round, 5 Tine, Heavy Weight..... 18.50
Angular Face, Flat Back, 4 Tine, Heavy Weight..... 17.50

Manure Hooks.

Goose Neck or Bent Head.

Round or Oval, 4 Tine, Regular Weight, 6 feet Handles.. $16.50
Round or Oval, 5 Tine, Regular Weight, 6 feet Handles.. 18.00
Round or Oval, 6 Tine, Regular Weight, 6 feet Handles.. 19.50
Angular or Oval Back, 4 Tine, Regular Weight, 5 feet Handles 20.00
Flat or Brond Oval, 4 Tine, Regular Weight, 5 feet Handles 20.00
When with Strap Ferrules, add..... 2.00

Discount, 70 per cent.

GROUP No. 24.

Hop Hooks.

Angular or Oval Back, Flat or Broad Oval Tines.

4 Tine Light Weight, 4½ feet Handles	$16.00
4 Tine Heavy Weight, 5 feet Handles	21.50
5 Tine Heavy Weight, 5 feet Handles	29.00
Any of above full bright finish, increase list	.75

Clam Hooks.

Goose Neck or Bent Heads.

Round or Oval, 6 Tine, Regular Weight	$15.00
Angular or Oval Back, 4 Tine, 9 inches, Regular Weight	12.00
Round or Oval, 6 Tine, Heavy Weight	20.00

Discount, 60 and 10 and 2½ per cent.

GROUP No. 25.

Section A—Steel Garden Rakes.

Single Shank 6 Tooth Polished, 5 feet Handles	$9.00
Single Shank 8 Tooth Polished, 5½ feet Handles	12.00
Single Shank 9 or 10 Tooth Polished, 5½ feet Handles	13.50
Single Shank 11 or 12 Tooth Polished, 6 feet Handles	15.00
Single Shank 13 or 14 Tooth Polished, 6 feet Handles	16.50
Single Shank 15 or 16 Tooth Polished, 6 feet Handles	18.00
Single Shank 18 Tooth Polished, 6 feet Handles	19.50
Bow or Braced Shank, add to list	3.00
Socket Rake, add to list	3.00

Discount, 70 and 5 and 2 per cent.

Section B—Stamped Blank.

Braced Shank, Blued or Black, not polished, list as above.

Same, Rough Polished, add to selling price, net	.25

Discount, 79 per cent.

GROUP No. 26.

Turf Edgers.

Shank Polished, 4½ to 5 feet Handles	$10.50
Socket Polished, 4½ to 5 feet Handles	11.50

Discount, 60 and 5 per cent.

SPECIALTIES.

Section A—Steel Road Rakes, Extra Heavy.

Sizes.	10 Teeth.	12 Teeth.	14 Teeth.	16 Teeth.
Shank Rakes Black	$17.00	$18.50	$20.00	$21.50
Shank Rakes Polished	19.00	20.50	22.00	23.50

When with Strap Ferrules, add $1.50.

Discount, 65 per cent.

Section B—Special Mortar Hoes.

Small Sizes.

Shank 7½ inch Blade, 7 feet Handles	$13.00
Shank 8 inch Blade, 7 feet Handles	13.50
Shank 8½ inch Blade, 7 feet Handles	14.00
Shank 9 inch Blade, 7 feet Handles	14.50

Discount, 40 and 10 and 2½ per cent.

Harper's No. 7 Mortar Hoes.

Shank 10 inch Blade, 7 feet Handles	$30.00
When with Strap Ferrules, add	1.50

Discount, 65 per cent.

Section C—Truck and Turnip Hoes.

Half Moon Shape. All on 4½ feet Handles.

Size Blades.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.
Shank	$6.50	$6.75	$7.00	$7.50	$8.00	$ 8.50
Socket	7.25	7.50	7.75	8.25	9.25	10.00

Discount, 50 and 10 and 2 per cent.

Section D—Jersey Truck Hoes.

Shank, 7½ inch Blades, 4½ Handles	$ 9.00
Socket, 7½ inch Blades, 4½ feet Handles	10.00

Discount, 65 per cent.

Section E—Special Hoes, &c.

Crescent Cultivator Hoe, 6 inch, 4 1-3 feet Handles	$15.00
Crescent Cultivator Hoe, 7 inch, 4 1-3 feet Handles	15.50
Double Bit Cultivator Hoe, 6 inch 4½ feet Handles	13.50
Double Bit Cultivator Hoe, 7 inch, 4½ feet Handles	14.00
Kretsinger Cut-Easy Sinuous Edge, add to any list	.50
Acme Weeding Hoe, 4½ inch 4½ feet Handles	19.00
B. B. Cultivator Hoe, 6 inch, 4½ feet Handles	15.00
B. B. Cultivator Hoe, 6½ inch, 4½ feet Handles	15.25

Discount, 75 and 10 and 2 per cent.

Section F—Hoe Down Hooks.

Oval 4 Tine, 10½ inch Tines, 5 ft. Bent Strap Handles	$22.00

Discount, 75 and 10 and 2 per cent.

Section G—Warren Hoes.

7 inch Blade, Polished, 4½ feet Handles	$10.50
7½ inch Blade, Polished, 4½ feet Handles	12.00
8 inch Blade, Polished, 4½ feet Handles	12.50

Discount, 60 per cent.

Section H—Laid Steel Edge Hoes.

Shank 6 inch Blade, Half Polish, 5 feet Handle	$5.75
Shank 6½ inch Blade, Half Polish, 5 feet Handle	5.75
Shank 7 inch Blade, Half Polish, 5 feet Handle	6.00
Shank 7½ inch Blade, Half Polish, 5½ feet Handle	6.25
Shank 8 inch Blade, Half Polish, 5½ feet Handle	6.75
Shank 8½ inch Blade, Half Polish, 5½ feet Handle	7.25
Shank 9 inch Blade, Half Polish, 5½ feet Handle	7.75

Discount, 25 and 5 and 2 per cent.

FINISH, &c.

Riveting, &c.

For punched Shanks, riveting, nailing or any other device or attachment for fastening in the Handles the Shanks of any Steel Goods, add to list $1.00.

Finish.

Painted or Bronzed or Black rough finish to Ferrules and Sockets is contemplated in these list prices.

For full Bright Finish Goods:

Common Ferrule Goods, advance per dozen list 75c.

Strap Ferrule Goods, advance per dozen list $1.00.

Socket Goods, advance per dozen list $1.25.

Handles on Second or Third Grade Goods shall have no other than rough belt finish.

Grading.

Second Quality Goods shall be those with apparent defects or inferiority in the metal parts and in all cases shall be put on second grade of Handles.

Third Quality Goods, where provided for in Manure Forks, shall have Tines not over 11½ inches long, half polish only and in all cases should be put on third grade of handles. They shall not be capped without a charge of 60c. per dozen list to be made for same.

Tines.

All Fork Tines are oval or round unless the list otherwise specifically provides for other shapes.

Tine Lengths, unless specifically otherwise provided for, as follows:

Regular pattern, first quality, of 3 and 4 tine Hay Forks have Tines 11½ to 12 inches long.

4 Tine Manure Forks, first quality long Handles, have Tines 11½ to 12 inches long.

4 Tine Manure Forks, first quality D Handles, may have Tines 11½ to 13 inches long.

5 and 6 Tine Manure Forks, first quality D Handles, may have Tines 12 to 13 inches long.

Spading Forks have Tines 10½ to 11½ inches long.

Labels.

All First Quality Goods shall bear the maker's name.

All Second and Third Quality Goods shall not be labeled with the maker's name.

Coke, Coal, Beet and Other Heavy Forks, &c

Coke and Cottonseed Forks.

Diamond Tines and Strap Ferrules.

8 Tines, Black, Wood D or Mall D Handles	$20.00
10 Tines, Black, Wood D or Mall D Handles	24.00
12 Tines, Black, Wood D or Mall D Handles	28.00
13 Tines, Black, Wood D or Mall D Handles	31.00
14 Tines, Black, Wood D or Mall D Handles	33.00
16 Tines, Black, Wood D or Mall D Handles	40.00
18 Tines, Black, Wood D or Mall D Handles	48.00

Discount, 40 and 5 per cent.

Coal Forks.

Diamond Tines and Strap Ferrules.

8 Tines, Black, Wood D or Mall D Handles	$20.00
9 Tines, Black, Wood D or Mall D Handles	22.00
10 Tines, Black, Wood D or Mall D Handles	25.00
12 Tines, Black, Wood D or Mall D Handles	29.00
14 Tines, Black, Wood D or Mall D Handles	33.00
16 Tines, Black, Wood D or Mall D Handles	40.00
7 tines, Black, Heavy, 18 inches wide, Wood D or Mall D Handles	26.00

Discount, 40 and 5 per cent.

Barn or Ice Forks.

Oval Tines and Strap Ferrules.

8 Tines, Polished, Mall D Handles	$22.00
10 Tines, Polished, Mall D Handles	26.00
12 Tines, Polished, Mall D Handles	30.00
When on Wood D Handles add	2.00

Discount, 40 and 5 per cent.

Beet Forks.

Round Tines and Strap Ferrules.

5 Tines, Polished, Blunt Points, Mall D Handles	$16.00
6 Tines, Polished, Blunt Points, Mall D Handles	18.00
6 Tines, Polished, Solid-Ball Points, Mall D Handles	20.00
7 Tines, Polished, Blunt Points, Mall D Handles	20.00
7 Tines, Polished, Solid-Ball Points, Mall D Handles	22.00
7 Tines, Black, Solid-Ball Points, Mall D. Handles	20.00
When on Wood D Handles add	2.00
If with Attached-Ball Points, add to Solid-Ball list	1.00

Discount, 40 and 5 per cent.

Ballast or Stone Forks.

Black Tines and Strap Ferrules.

8 Tines, Square, Wood D or Mall D Handles	$20.00
9 Tines, Square, Wood D or Mall D Handles	23.00
10 Tines, Square, Wood D or Mall D Handles	25.00
11 Tines, Square or Round, Wood D or Mall D Handles	27.00
11 Tines, Flat, Wood D or Mall D Handles	30.00
12 Tines, Square, Wood D or Mall D Handles	29.00
13 Tines, Square, Wood D or Mall D Handles	31.00
14 Tines, Square, Wood D or Mall D Handles	33.00
16 Tines, Square, Wood D or Mall D Handles	40.00
18 Tines, Square, Wood D or Mall D Handles	48.00

Discount, 40 and 5 per cent.

Tanners' Forks.

Polished Tines and Strap Ferrules.

5 Tines, Diamond, Square or Flat Oval Wood D or Mall D Handles	$18.00
6 Tines, Diamond, Square or Flat Oval Wood D or Mall D Handles	20.00
8 Tines Diamond, Square or Flat Oval Wood D or Mall D Handles	22.00
10 Tines, Diamond, Square or Flat Oval Wood D or Mall D Handles	26.00
12 Tines, Diamond, Square or Flat Oval Wood D or Mall D Handles	30.00

Discount, 40 and 5 per cent.

Shaving Forks.

Polished Oval Tines and Strap Ferrules.

6 Tine, 16 ins. long, 15 ins. wide, 4 ft. Mall D Handles	$22.00

Discount, 40 and 5 per cent.

Potato Scoop Forks.

Flat Oval Tines and Strap Ferrules.

8 Tines, Black, Mall D Handles	$20.00
10 Tines, Black, Mall D Handles	24.00
12 Tines, Black, Mall D Handles	28.00
When on Wood D Handles add	2.00

Discount, 50 per cent.

Oyster Forks.

Half Polished Tines and Strap Ferrules.

8 Tines, Diamond, Wood D or Mall D Handles	$22.00
10 Tines, Diamond, Wood D or Mall D Handles	26.00
12 Tines, Diamond, Wood D or Mall D Handles	30.00

Discount, 40 and 5 per cent.

Sluice Forks.

Half Polished Tines and Strap Ferrules.

8 Tines, Diamond-Oval, Long Handles	$22.00
10 Tines, Diamond-Oval, Long Handles	26.00
12 Tines, Diamond-Oval, Long Handles	30.00

Discount, 40 and 5 per cent.

Heavy Mill, Manure or Street Forks.

All on Mall. D Bent Handles, Common Ferrules.

4 Tines, Ordinary Weight, 13½ to 14 inches, Oval or Round, Pol	$22.00
4 Tines, Heavy Weight, 15 inches, Half Polish, Oval or Round	24.00
4 Tines, Extra Heavy Weight, 16 to 17 inches, Pol., Oval or Round	30.00
4 Tines, Heavy, 13½ to 14 in., Diamond or Square, Half Polish	24.00
4 Tines, Extra Heavy, 15 in., Diamond or Square, Half Polish	27.00
5 Tines, Double Extra Heavy, 15 to 16 in., Diamond, Half Polish	42.00
Five Tines, increase list over 4 tines above	10.00
Six Tines, increase list over 4 Tines above	15.00
To any of above: Add for Strapped Ferrules	2.50
To any of above: Add for Wood D Handles	4.00
To any of above: Add for Handles longer than 4½ ft., for each 6 inches	.50
From any of above: Deduct for 4 or 4½ feet Long Handles	1.25

Discount, 70 per cent.

Steel Tar or Asphalt Rakes.

With 18 inch Iron Shanks.

Shank, Common Ferrule, 4½ feet Handles	$25.00
Shank, Strap Ferrule, 4½ feet Handles	26.50

Discount, 65 per cent.

Asphalt Hoes.

Shank, 10 inch Blade, 6 feet Handles	$24.00

Discount, 65 per cent.

Memoranda.

Add for Polishing any Black Forks, list	$2.00
Deduct if Long Handles are wanted in place of "D's," list.	1.00

Corbin Door Check.—P. & F. Corbin, 11-13 Murray street, New York, on August 1 advanced the price of the Corbin Door Check 10 per cent.

Cordage.—An advance in the price of Rope was announced by the manufacturers August 8, to take effect at once. The following quotations show the advanced prices, which are for carloads, ¼ cent additional being charged for less than carloads:

	Per pound. Cents.
Manila, 7-16 inch and larger	10¼
" ⅜ inch	10¾
" ¼ and 5-16 inch	11¼
Sisal, 7-16 inch and larger	8¼
" ⅜ in.	8¾
" ¼ and 5-16 inch	9¼
" Lath Yarn	7⅝

Manila Tarred Rope, 15-thread, is quoted at 10¼ cents, as is also Manila Hay Rope, Medium. The price of Jute Rope is 6 cents. The advance in the cost of Manila Hemp, in sympathy with which Sisal Hemp has advanced, is the cause of the higher prices of Rope. Demand covering current requirements is in fair volume.

Glass. — Interest in Glass circles centers about the formation of the new combination to be known as the American Window Glass Company and about the wage scale for the ensuing fire. Varying reports have been in circulation for the past three months or more regarding the new trust, most of which have been premature, as success in formation does not appear to be absolutely assured yet. *The Commoner and Glassworker*, referring to the matter, makes the following statement regarding facts known to them:

The known facts about the trust are that it has secured a Pennsylvania charter and applied for a New Jersey one; will have $30,000 000 capital stock, to which so far only manufacturers with plants to sell have subscribed; has options on not over 75 per cent. of the available capacity, and is being strongly antagonized by the workmen, who by giving the preference to independent firms will cause many spare spots for the trust, materially reducing the percentage of output it can control.

The workmen are reported as proposing to go before the manufacturers' committee and present the wage scale agreed upon by them and inform the committee that they will not agree to adjourned sessions of the scale conference, but if a settlement is not made at the first conference the scale will at once be presented to the independent manufacturers, who are ready to start about 600 pots September 15. It is understood that some plans have been outlined which are intended to make this move effective, and that the workers are interested in the suc cess of the independent manufacturers.

All jobbers are not asking the 5 per cent. advance made in the price of American Window Glass, announcement of which we made last week. Local prices are 80 and 20 per cent. discount for small lots of Glass. The American Glass Company's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more	85	85	.....	85
Carloads	80 & 15	80 & 15	80 & 20	80 & 15
3000 boxes or more	80 & 20	80 & 20	.....	80 & 2½
1000 boxes or more	.....	.....	85	.....

Paints and Colors.—*White Lead.*—Demand for White Lead in Oil keeps up well for the season A feeling pervades the trade that later higher prices will rule. We continue to quote on a firm market as follows: In lots of less than 500 pounds, 6¼ cents; in lots of 500 pounds and over, 5½ to 5¾ cents.

Oils.—*Linseed Oil.*—The week has seen a slight advance in the price of Seed, without, however, affecting Linseed Oil quotations. Oil is moving well for the season to supply current wants, while some contracts for future delivery are being placed. City Raw is quoted at 39 cents in lots of five barrels or more and 40 cents in less than five barrel lots. Western Raw is quoted at 35 cents in carload lots and at 36 to 37 cents for small lots.

Spirits Turpentine.—There has been a sharp advance in the price of Turpentine during the past week. Receipts at Southern points have been light, while it is not known how much damage was done to Turpentine interests by the recent storm in the South. The conditions, together with the large estimated contract requirements for August and the small local offerings, advanced the market to 49 cents per gallon for Southerns and 49½ cents for machine made barrels. Demand is fairly good owing to present requirements and the strong position taken by holders, with the prospect of a possible further advance in prices.

Hardware Organizations.

The Illinois Retail Hardware Association.

The prospects are very encouraging for the approaching State convention of Illinois retail Hardware dealers, which is to be held at Chicago on the 16th, 17th and 18th inst. Ehler Goettsche and Fred. Kurtz of the Chicago Retail Hardware Dealers' Association, who are pushing the work of organization, have received numerous letters from dealers throughout the State, who exhibit much interest in the movement and are pleased to see that action is being taken to get the retailers together. A very interesting letter has been received from Lewis M. Reeves, secretary of the Peoria Retail Hardware Merchants' Association, who says:

As far as Peoria merchants are concerned we shall do everything in our power to make it a success. We have a local association here which has worked wonders as far as it has gone and we have only been organized a short time and can easily see how a State association would benefit one and all. There are too many evils which we have to contend with which can as easily, if not more so, be overcome with a State association. Without any hesitancy I can say that a majority of the Peoria merchants will be in attendance at the State meeting in August, and if we can be of any service to you in the meantime don't hesitate to call on us and we shall do all in our power to help such a good cause.

If the attendance is as large as the letters would seem to indicate, the opening meeting of the State association will be a great success.

Under the title of "Second and Last Call" a postal card with the following contents has just been issued by the Committee on State Organization:

Gentlemen: Our convention day is near, and if you want a success you must help make it so. We are all here, but we want you to come. Illinois should be in the front of all other States with a retail Hardware dealers' association. Therefore, wake up, Illinois, and don't fail to attend the convention at Schonhofen Hall, Milwaukee and Ashland avenues, Chicago, August 16, 17 and 18, 1899.

We have spent a great deal of time and labor, and we hope that all of you will do your duty and meet us at the convention. Kindly advise us by postal card, if you have not already done so, stating whether you will attend or not. We would like to know about how many to provide for.

Hoping to meet you all, and expecting some good essays on "Trade Abuses" to be read and discussed in the convention, We are, yours respectfully,

E. GOETTSCHE, 1049 Milwaukee avenue, Chicago.
FRED. KURTZ, 1061 West Madison street, Chicago.
Committee on State Organization.

Bring your brother dealer.

Iowa Retail Hardware Dealers' Association.

A special meeting of the Iowa Retail Hardware Dealers' Association has been called by President Hugh A. Cole, to be held at Des Moines on the 28th inst. The Savoy House in that city has been selected as headquarters, and the meeting will be called to order at 10 a.m. Reduced railroad fares to Des Moines can be secured, in view of the fact that the State Fair will be on at that time.

Pressing the Peddlers.

THE South Dakota Retail Merchants' Association, which comprises retailers of Hardware as well as other lines, is moving energetically against the peddlers who visit that State, and has issued posters concerning the matter which are intended for prominent display in all post offices, hotels and boarding houses throughout the State. The poster is in the form of a notice to the peddlers, and is printed on heavy cardboard, 14 x 11 inches. It is given in *fac-simile* of style herewith, the reduction being one-half. To the auditor of every county in the State the association has also sent the following circular letter:

The provisions of the peddlers' law requires that the Board of County Commissioners shall fix the amount of the license before violations of the law can be prosecuted. Will you please advise us as soon as possible whether or not your board has done anything in the matter, and if they have acted upon the law state when and what amount the license was fixed at. If no action has been taken, we would request that you call the attention of the board to this requirement so that they will make good their previous oversight in the case.

NOTICE TO PEDDLERS.

In 1897 the legislature of South Dakota, with the view of protecting the people of this state against peddlers selling poor and worthless goods, misrepresented as to quality, and from whom there was no recourse when the goods were found to be of no value, passed a law known as the Peddlers' Law. This law is still in force and effect in every particular, having been declared so by the courts, and all peddlers are advised that violations of the law will be vigorously prosecuted. The sections of the said law applying to peddlers are as follows:

Section 1. UNLAWFUL TO PEDDLE WITHOUT LICENSE. That on and after the passage and approval of this act it shall be unlawful for any person to peddle, hawk any goods, wares or merchandise whatsoever without first having procured a license from the county wherein such peddling or hawking is to be conducted.

Section 2. LICENSE. Each peddler or hawker traveling with a pack and on foot shall pay a license of not less than twenty-five ($25) nor more than fifty ($50) per year.

Section 3. LICENSE. Each peddler or hawker traveling with a wagon or other vehicle shall pay a license of not less than fifty dollars ($50) nor more than one hundred dollars ($100) per year.

Section 6. PEDDLERS TO EXHIBIT LICENSE. Each peddler, hawker or solicitor taking out license under the provisions of this act shall be compelled to exhibit such license whenever called upon by any party to whom such peddler, hawker or solicitor is endeavoring to make a sale of goods.

Section 8. APPLICABLE WHEN. The provisions of this act shall not be construed to apply to peddlers or hawkers in farm products.

Section 9. PENALTY. Any person violating the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than twenty-five dollars ($25) nor more than one hundred dollars ($100.)

Notice to Peace Officers:

When peddlers appear in your community ask them to exhibit their license. If they cannot or will not do so arrest them when they will be fined. The money so obtained will help to decrease the taxes that the property owners are required to pay.

Notice to the Public:

When a peddler appears at your home show him the door, and buy your goods from your local merchants who help pay taxes and otherwise upbuild the interests of your community and state; who will make good any defects in the goods you buy, and who are always ready to give you satisfaction and the worth of your money for the purpose of pleasing you and increasing their trade.

If any licenses have been taken out in your county will you please let us know when, by whom, and the fee paid.

Kindly let us hear from you as soon as possible so that we will not have to bother you with another request.

The method followed by the association in dealing with peddlers will probably be suggestive to organizations in other States where the peddler has obtained a foothold.

In view of the invasion of their territory by Steel Range peddlers, H. Sixbey & Sons, Mayville, N. Y., have gotten out a large circular in which they caution farmers and others against the tricks and artifices of this class. The firm emphasize the fact that they are in position to offer better and more satisfactory goods in every way and at materially lower prices when everything is considered. This circular was distributed from house to house for a distance of 10 or 12 miles around their town by two of their clerks, one mounted on a Bicycle and covering 40 miles a day, and the other with a horse and buggy, covering about the same amount of ground.

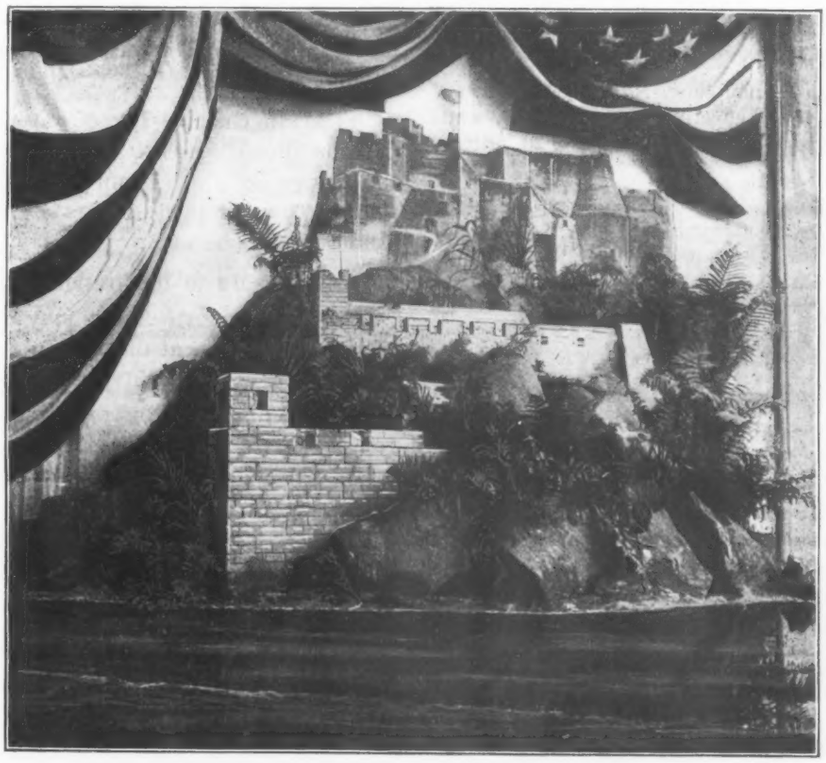
Trade Winning Methods.

This department will contain a description of approved methods of bringing customers to the store by means of newspaper advertising, circulars and such special expedients and methods as are found useful by enterprising and progressive Hardwaremen.

A cordial invitation is extended to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

A FOURTH OF JULY WINDOW DECORATION.

The accompanying cut represents a Fourth of July window decoration named Morro Castle, used by Carlton Hardware Company, Calumet, Mich., and which was calculated to appeal to the patriotic feelings of beholders. The show window in which the display was made is on a corner with 10 feet of glass on each street. The background was of sheeting stretched on a frame 7½ feet high and 12 feet long. The upper part of the picture, or the main castle, was painted in water colors on the background. The middle line of fortifications was of Sheet Iron, with guns and openings painted upon it.



A Fourth of July Window Decoration.

This was fastened to a frame about 2½ feet from the background. The lower fortifications were of brick painted a slate color, and placed 4 feet from the background and reached down to the water's edge. In arranging for the water, about 6 inches of sand was put on the floor of the window, then hollowed out and cemented, so as to hold about 4 inches of water in the center. The water was colored a deep blue green. Some of the rocks were real, while others were made of paper and painted. The foliage was made up of ferns, brakes, umbrella plants, &c., no cacti being obtainable in the place.

HINTS ON STORE MANAGEMENT.

BY A MERCHANT.

TOO HEAVY A STOCK.—It is a mistake to carry too heavy a stock. Many men of limited capital have made irrevocable mistakes on this point. Freight and shipping facilities are now of such a character that goods can be ordered and received in a few days after. When small stocks are carried there is less danger of that other evil, "dead stock."

A CLEARING OUT.—At the annual inventory all stock over a year old should be selected and special pains taken to get rid of it. The means for doing this will readily suggest themselves to the live merchant. Either by special price tags, window displays and other devices it is cleared out at any price, and the room occupied by more salable goods.

PROFITABLE NOVELTIES.—It is a mistake to refuse to handle novelties and new goods. We all admit that there are worthless goods of this class coming forward which do not sell, but for the most part they catch the trade. People like something new, and if it has any merit a good turn can often be taken out of them.

SELECT DISCREETLY.—The only caution needed is not to buy too freely at first, but test their popularity and push them vigorously; but when their salability seems to wane close them out as speedily as possible and try something else.

UNTIDINESS.—It is a mistake to have an untidy store. Moreover there is no excuse for it. The floor can be kept clean and well swept; the counters need not be littered with half opened packages of goods and the shelves need not present the appearance as if they had been recently visited by a cyclone, as we have seen in some shops.

ATTRACTIVENESS.—What we all like to see is the clean, bright appearance of the shop, goods tastefully displayed, a well kept window where the same goods do not remain week after week, goods on the shelves neatly piled and courteous and obliging treatment as we enter. These are the stores where we all like to deal and where we find the proprietor is yearly making additions to his capital.

HARDWARE MERCHANTS' ADVERTISING CUTS.

In addition to the cuts illustrated in former issues for use in the retail Hardware merchant's advertising, we are now prepared to furnish those shown herewith,

No. 22.—Price, 50 Cents.

which are all single-column cuts. No. 22, price 50 cents, attracts attention in an effective way to Shears, while Cutlery and Silverware is the subject of No. 23, price 40

No. 23.—Price, 40 Cents.

cents. No. 24, also offered at 50 cents, is another cut permitting the use of printed matter alongside in a single column advertisement, and may be employed

No. 24.—Price, 50 Cents.

when the merchant desires to call special attention to his line of Oil Stoves.

Any of these cuts, with others in the series, will be sent postpaid on receipt of price by David Williams Company, 232-238 William street, New York.

The Iron Age Advertising Prize Competition No. 2.

COMPETITION No. 1.—The advertisements submitted in accordance with the terms of Competition No. 1 are now in the hands of the Committee of Award, whose decisions will be announced as soon as possible.

We hereby announce Advertising Prize Competition No. 2 for the best advertisement relating to any kind of FALL OR WINTER GOODS.

1. **Object.**—The object of the Competition is to draw out the views of the trade in regard to the best and most effective methods of advertising the goods in question. The general participation of those interested in the Retail Hardware Merchant's advertising is invited, such use as we may deem advisable to be made of the competitions submitted.

2. **Size.**—The advertisement should not contain more than 25 square inches and may be arranged in one or more than one column.

3. **Arrangement.**—Those entering the Competition should send to the address given below the design or draft of an advertisement in such form as to indicate clearly its size, subject matter, kind of type, character of display, &c.

4. **In Regard to Illustrations:**

(a.) The advertisement may be without illustraticn, or it may, at the option of the designer, contain one or more cuts, original or otherwise.

(b.) If original illustrations are suggested, a rough sketch, which will be sufficient to give our artist the idea of the illustration, will be acceptable.

5. **Date.**—This Competition, which is open to any in the trade, will close Saturday, August 26, 1899.

6. **Prizes.**—The following Prizes will be awarded:

FIRST PRIZE, $25.

SECOND PRIZE, $15.

THIRD PRIZE, $10.

All communications are to be addressed to

THE IRON AGE,
232-238 William Street,
New York.

Advertising Prize Competition.

C. E. Jennings Company.

C. E. JENNINGS COMPANY, 101 Reade street, New York, have issued an illustrated catalogue of Mechanics' Tools and Hardware Specialties in great variety. In it are shown an exceptionally full assortment of Boring Tools, Chisels, Drawing Knives and Hand, Butcher and Hack Saws of their manufacture. There is also shown a complete line of Tool Chests, from those designed for amateurs to the finest for professional mechanics. Some radical changes have been made in the list prices. A new discount sheet now in press will be ready this week.

Changing the Selling Prices in a Retail Hardware Store.

In addition to the communications on this subject published in our last two issues we have the following from a well-known Ohio merchant, whose discussion of the question will be read with interest:

I NOTE an inquiry for "System for Changing the Selling Prices in a Retail Hardware Store." I should judge the inquiry in its first part refers to that part of the business which is a bane to many in it—*i. e.*, what percentage of profit is a proper one to add, or what profit should be on such and such an article as compared with another. The writer does not recall ever having seen a system in this connection that would apply to the business of any two merchants. It would seem that conditions of all sorts would apply, and that location, amount of capital, amount of stock carried, class of trade to be catered to, whether cash or credit holds forth and so on—all these things and many more entering into the problem as to what the selling price of goods should be to correspond with cost.

It is a Problem

not to be passed by, not easily settled, not always correct when settled upon; dependent, too, on expense of room, expense of help, ability to buy right, and the nature of your competition. Then as goods are extremely low or extremely high the matter of system as to so much percentage of profit to add is upset. It is an old question, and one that settles itself largely with each man in business. Instead of system it becomes a question as to what the competitor is doing, what are his prices on goods, and must I necessarily meet them? The man with a system as to the proper percentage of profit is often the first one to run into print with, "Goods below cost for this week," &c.

The Second Problem

resolves itself into careful gathering together of all new lists as they come out, watching for and marking them up with the latest discounts, so that goods may at least be sold right.

Your correspondent has boxes, and his trouble seems to be that the wrong prices and sometimes "no prices" reach the retail boxes. It would seem sheer carelessness on some one's part where such a state of affairs existed. We have an absolute rule that no goods go on the shelves without marking, that no invoices go to the office without checking, and that checking always means marking—that is, the checking is made a part of the marking, and if checked we know they are marked, because of two rubber stamps we use, one reading

O. K.-CHECKED.
By..... Date.....

the other

O. K.-MARKED.
By..... Date.....

in addition to which, if the ordinary V check mark should occur on invoices and no evidence of responsibility for it, the matter is at once looked up.

As to the Boxes.

We never allow goods to go on the shelves unless the cost on the shelf boxes first corresponds with the newly marked goods. Frequently where surplus stock is carried it is sufficient to mark the cost only on the packages, unless you also job, as the box is your selling and important point. As to the changes daily occurring and remissness that occurs in keeping up with them we have found better and more lasting benefit in keeping close up by using constantly

"The Iron Age Standard Hardware Lists."

Always of great value, we find it increases in time of rapid changes. The new pamphlet, complete and revised to July 1, is always at hand, and marked and ready for any emergency. If you are so crowded for the time being, then with these corrected lists and proper discounts before you the changes can be made when you will, and they must be made, or the profits that should be yours frequently get away. There is always some one, a cool head, or

The Man of All Work,

who gives his time to matters of this kind, and now if ever, for the good of all concerned and the good of the business, he should have full sway and lots of time at this one chance for all of us, of making the goods bring a present market value, few of us will ever see again a like opportunity to get such values.

Yale & Towne Mfg. Company's Catalogue.

YALE & TOWNE MFG. COMPANY, 9-13 Murray street, New York, have just published catalogue No. 17 of Locks and Builders' Hardware. It is a handsomely printed and bound volume of over 900 pages, each 9½ x 12¾ inches, the binding being cloth and leather, the general arrangement and unique character of much of the matter reflecting great credit on its compiler, while the exhaustive line of this class of merchandise makes it a valuable accession to trade literature.

The plan and scope of the work attempts to illustrate only a few examples of their large number of ornamentations, while tabulating information relating to all, thus enabling the company to present a compact volume of about one-half the size otherwise possible.

The comprehensive line includes various qualities of goods which will be readily recognized by their trade names, Yale, Yale-Standard, Vulcan and Branford, all closely related, constituting, in a broad sense, a harmonious, symmetrical assortment from the finest to the cheapest.

It is claimed that every species of Lock and Trim required by architect, dealer and builder is shown, while ignoring trivial and needless variations of dimensions and style.

The catalogue aims to present each group of Locks in serial order, according to price, beginning with the cheapest. There are about 250 different ornamentations, embracing goods of diverse quality, from Cast Iron Hardware to the most expensive in real bronze, silver and gold.

In addition to Builders' Locks and Trim there is shown a complete assortment of Cabinet and Trunk Locks, Padlocks, Prison Locks and many Locks for special requirements. An important feature of the work is the contents of the first 47 pages, following the General Index. First is a Numerical Index of Locks and Hardware in consecutive order. Then a comparison of old and new numbers, followed by two pages of clues to the number system. Next in order are three pages of metals and finishes, and immediately after six pages of a glossary of technical terms relating to Locks and Hardware, by Henry R. Towne, which is very instructive. In the order named, occupying the remaining 23 pages, are a history of the company, some details of the Yale Lock, references to Vulcan and Branford Locks, Art in Metal Work, hints for taking off Hardware, General Information, Master Keyed Locks, Hand of Doors and Bevel of Doors and Locks, copiously illustrated.

Curtis & Van De Bogart have purchased the Hardware store of Curtis & Benner, at Red Hook, N. Y. The change is referred to as providing more money for the business and permitting the firm to add materially to the stock carried.

Requests for Catalogues, &c

STRATTON & BRAGG, Petersburg, Va., have moved into larger and more commodious quarters, where they will be in good position to take care of their expanding business. They are now comfortably settled in the double store, 20 and 22 N. Sycamore street, which is situated on a corner of the principal business thoroughfare of the city. The building is of pressed brick and has a handsome plate glass front. The floor capacity is 20,000 square feet. One of the stores is occupied by the Vehicle and Harness department, the other being devoted to stock of Hardware, Engines and Machinery. While they will carry on the retail Shelf and Heavy Hardware business, it is their intention to give special attention to the wholesale side, and they will be pleased to receive catalogues, &c., from manufacturers.

Manson & Barr, agents and importers, Palmerston North, New Zealand, advise us they would be glad to hear from American manufacturers of Hardware and Agricultural Machinery, with copies of catalogues and other printed matter, as well as quotations.

Price-Lists, Circulars, &c.

THE RUSSELL JENNINGS MFG. COMPANY, Deep River, Conn.: Augers and Auger Bits, with sizes carried in stock mentioned in connection with each illustration.

CENTRAL HARDWARE COMPANY, Philadelphia, Pa., C. E. Peabody, 90 Chambers street, New York, selling agent: Illustrated catalogue of Cast Iron Hardware, including Cupboard Turns, Sash Fasts, Bolts of many kinds, Latches, Hooks, Frame Pulleys, &c.

THE NORTH ELECTRIC COMPANY, Cleveland, Ohio: Telephones, Transmitters, &c.

COLEMAN HARDWARE COMPANY, Chicago: Builders' and Cabinet Hardware, also Grip Neck and Fox Furniture Casters.

GOODELL-PRATT COMPANY, Greenfield, Mass.: Catalogue of Tools, including Braces, Saws, Chucks, Drill Attachments, Automatic Screw Drivers and Drills, &c.

D. F. TANNER, Buffalo and Holland, N. Y.: Circular of Lever Barrel Headers, Wagon Bolster Springs and Wagon Pole Springs.

HAGEN & REID, Troy, N. Y.: Circular and price-list of Punching Presses, Cutting Off Machines, Punches, Dies, Nail and Tack Pullers, Lemon Squeezers, &c.

Trade Items.

THE INTERNATIONAL SILVER COMPANY, 9-13 Maiden lane, New York, have published a handsomely printed trophy book of 32 pages, in which are shown a great number of trophies in sterling and silver plated ware, ranging in price from $2 to $500, made at the works of the Meriden Britannia Company, Meriden, Conn. The book has been prepared largely for the use of club secretaries and others interested in amateur sport, and from the assortment shown a prize can be chosen for almost any kind of event.

C. E. JENNINGS of C. E. Jennings & Co., 101 Reade street, New York, left here July 29 on the steamer "Statendam" for Rotterdam, Holland. He goes in the interest of his concern and will spend several months in Europe.

KELLEY, MAUS & Co., Heavy Hardware jobbers, Chicago, have extended their business by securing another warehouse. They have taken the quarters occupied for so many years by the Brown-Bonnell Iron Company, at Taylor and Clark streets. This is one of the best locations in Chicago for such a warehouse. Immediately in the rear of the building are the tracks of the Lake Shore & Michigan Southern and the Rock Island railroads, with a convenient siding. It is commodious and well arranged for handling iron and steel, and its location will give the firm special advantages in reaching local as well as country trade.

VARIETY MACHINE COMPANY, Warsaw, N. Y., manufacturers of Elevators and Dumb Waiters, are distributing an ornamental pin tray for desk use, on the bottom of which is a reference to their business and address. It is made of aluminum and in size is 3 x 5 inches.

PATTERSON, GOTTFRIED & HUNTER, 148-150 Centre street, New York, as an advertisement issue a canary colored card, 7 x 3¾ inches, on the reverse side of which is the figure of a carrier with mail pouch over shoulder. In the pouch are a number of tickets, 1½ x 1¼ inches, on which are printed the names of some of the leading concerns they are agents for. The device is entitled "Our Postman."

S. NORVELL, third vice-president of the Simmons Hardware Company, St. Louis, will sail from New York on the "Kaiser Wilhelm der Grosse" August 15. A visit to the principal points of interest in Great Britain and the Continent is contemplated.

E. G. SHEPARD, 107 Chambers street, New York, has secured the contract for Builders' Hardware required for the Herald Square Hotel, New York. This is a fine large 12-story building, covering about 100 x 200 feet of ground area, now being erected for C. F. Wildey. The Victor Screwless Door Knobs, Whipple's patent, made by L. T. Snow, New Haven, Conn., and recently illustrated in these columns, will be used throughout, there being about 800 doors in the structure.

W. M. MARKHAM, formerly president of the Markham Air Rifle Company, Plymouth, Mich., announces in a circular that he has completed arrangements with the administrator of the estate of Elmer W. Chaffee, late secretary and treasurer of the company, whose death occurred in June last, whereby the name of the Markham Air Rifle Company inures to his benefit, together with all rights, claims, bills receivable (since June 6), &c., Mr. Markham being the sole surviving partner. Mr. Markham will accordingly continue the business under the same name as heretofore, and solicits the orders of the trade. He also states that the former Markham Air Rifle Company was exclusively owned by him and the late Elmer W. Chaffee, and that A. W. Chaffee was in no way connected with the concern except as a traveling salesman.

Miscellaneous Notes.

Samson Cordage Works.

Samson Cordage Works, Boston, Mass., are sending out samples of Samson solid braided cord, including "spot" cord. These are recommended for use as halyards, hand lines, sheets, tiller ropes, reefing points, &c., in addition to use as sash cord.

Empire Calendar Stand.

The Samuel C. Tatum Company, Cincinnati, Ohio, are offering a calendar pad mounted in a neat iron frame, having the proper inclination for easy writing, also an excellent writing surface on each page. The leaves of the calendar are held by looped wires, and any contiguous left and right hand pages are devoted to one date. In addition to the name and date of the day on any left hand page is printed a miniature calendar for the month following, while on the right hand page are printed calendars for the current month, as well as for the month preceding.

Arnold Carriage Lamp Bracket.

Edward Miller & Co., 28-30 West Broadway, New York, manufacturers of lamps in great variety for almost any purpose, are offering the Arnold carriage lamp bracket, to which can be fastened their Majestic acetylene gas bicycle lamp. It is a permanent fixture, polished and nickeled. It consists of a strip of steel turned at one end with a thumb nut and screw for securing the lamp. It can be screwed to either top or bottom of the seat, and used on the right or left hand side of carriage.

German Enameled Ware.

George Borgfeldt & Co., corner Fourth and Wooster streets, New York, are marketing a new line of German two-coated white enameled ware. It is white inside and out, with a narrow blue stripe at the edge. The line includes the various sizes of basins, bowls, cups and saucers, mugs, pudding dishes, coffee and tea pots, plates, sauce pans, chambers, &c. The ware is guaranteed free from any poisonous or deleterious substances, and is made, we are told, of a high grade steel in American shapes, with a view to especial lightness and strength, one consideration being the saving of freight.

Lloyd Woven Wire Hammock.

Union Wire Mattress Company, 73 83 Erie street, Chicago, Ill., represented by Hardware Merchandise Company, 127 Duane street, New York, are manufacturing the Lloyd woven wire hammock here shown. It is made in 8, 9 and 10 feet sizes, 36 inches wide and weighs about

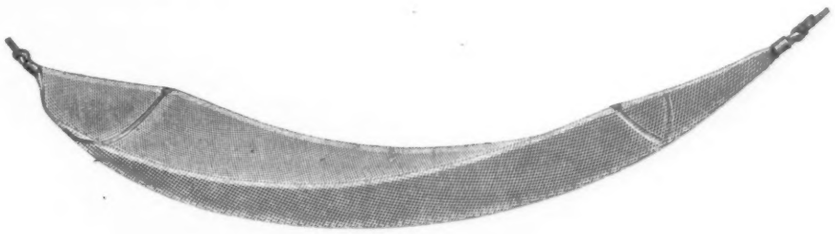


Fig. 1.—Lloyd Woven Wire Hammock.

10 pounds. The 10-foot length is naturally more elastic than the shorter ones and usually preferred for general use. It is made of galvanized steel wire very closely woven, Fig. 2 illustrating the actual size of the mesh. The end fittings are malleable iron galvanized and the entire hammock is moisture proof. The manufacturers make the following points in regard to the hammock: That it is more durable than the cord hammock; that it will not rust; that it need not be taken in at night, but can be left out the entire season without injury, and that it costs no

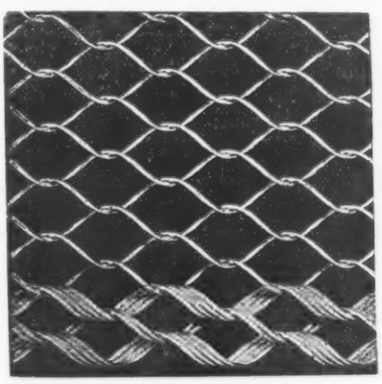


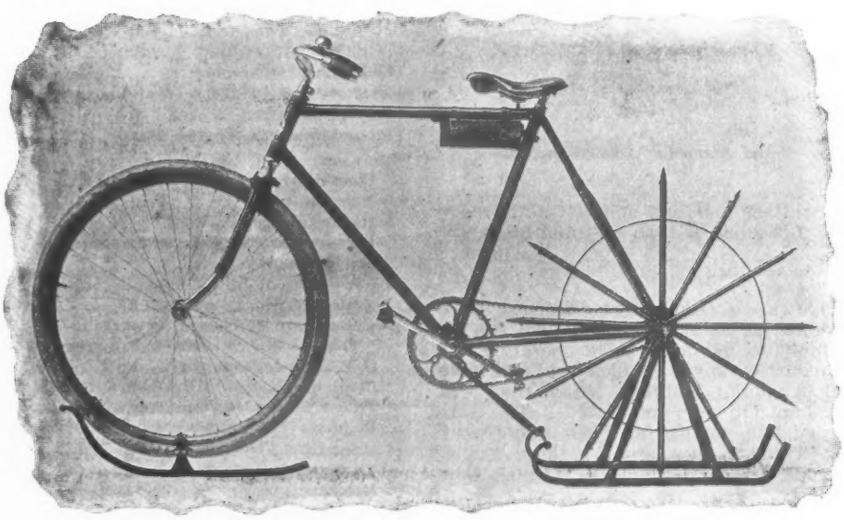
Fig. 2.—Actual Size of Mesh and Edge.

more than a fair cord hammock. The United States Government has specified them with a view to using them in the service in the West Indies and Philippines, we are advised.

F. I. Lamson, Rockland, Maine, has been succeeded by the Lamson Hardware Company, who have been incorporated with a capital stock of $50,000. The interested parties are Mr. Lamson, A. L. Lamson, F. A. Lamson, J. M. Lamson and C. E. Misserrey. A general Hardware stock is carried, in which both a wholesale and retail business is done.

The Ice Cycle.

The Ice Cycle Mfg. Company, Milwaukee, Wis., are offering to the trade a set of attachments to be used in converting a bicycle into an apparatus to be used on either ice or packed snow. An illustration is herewith presented of a bicycle which has thus been converted into an ice cycle. The attachment consists of a single runner for the front wheel and a double runner for the rear wheel, which can be applied with equal readiness to a single bicycle or a tandem. The runner for the front wheel is similar to a speed skate and is securely locked to the wheel by means of a hingelike clamp, which is fastened around the rim and held firmly in position by the use of two thumb screws. The rear double runner is provided with a rimless wheel of 12 spokes, which is substituted for the rear wheel. The runners for the rear wheel are 7 inches apart and are made of polished steel. Each spoke of the rimless wheel is equipped with an ice dog made of tempered steel, so constructed as to send the machine forward at a rapid rate of speed when the wheel is set in motion. The ice dogs are inserted in the ends of the spokes, each being provided with a tension spring strong enough to counteract all vibration, the tension being regulated by raising or lowering the frame. The adjustment of the tension is accomplished by a device similar to the chain adjustment on the ordinary bicycle, to suit the weight of the rider or the condition of the surface of the ice or snow. The front wheel is strapped to the fork, so that it is rigidly held. Any gear may be used, as the rear sprocket wheel is detachable and of standard thread. The parts are light and compact and may be carried on the handle bars to ice fields when snow riding is not practicable, and the bicycle can be converted into a self propelling sleigh in two to five minutes. The company have issued a neat catalogue descriptive of the device and giving the results of various trials made with this attachment during the past winter.

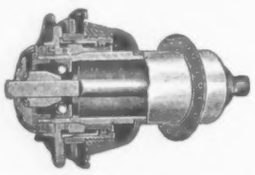


The Ice Cycle.

Maynard & Mansfield have lately opened up in business, at Sheldon, Vt., handling Hardware, Stoves, Tinware, Agricultural Implements, &c. Mr. Maynard was formerly senior partner of the firm of Maynard & Marsh, general merchants. Mr. Mansfield is a practical tinner of 27 years' experience.

Morrow Automatic Coaster and Brake.

Eclipse Bicycle Company, Elmira, N. Y., are offering the Morrow automatic coaster and brake, as here illustrated. The mechanism for coasting and controlling the wheel is all contained in the hub, as shown. In fitting it to various makes of wheels, already in a rider's possession, it is only necessary to remove the rear hub and substitute this one, being careful to

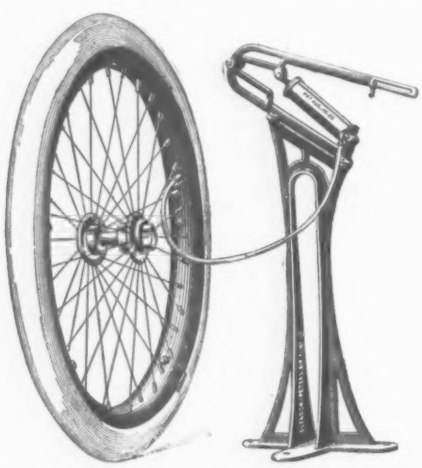


Sectional View of Morrow Automatic Coaster and Brake.

specify the number of spokes, teeth in rear sprocket and width of chain. The Morrow hub is made for 36 or 40 spokes, with eight or nine tooth sprockets for ¼ or 3-16 inch chain. The manufacturers say it can be fitted to any cycle, is perfectly reliable and guaranteed.

Automobile Tire Pump.

Mason-Peters Air Pump Company, Houston and Mercer streets, New York, are manufacturing an improved form of standard to which is fastened their No. 97 lever pump for pneumatic rubber tires. It is especially designed for automobiles and all kinds of pneumatic tired vehicles, including bicycles of all kinds. The pump has a capacity of 400 pounds per square inch, having packed washer and absolute check and intake valves. The vertical slot is 28 inches high, and is intended for holding a cycle wheel firmly while pumping. The standard is drilled to take in addition their Nos. 55 and 56 pumps. The standard can be fastened permanently inside or outside a



Improved Standard and Pump for Automobiles, &c.

store, repair shop or other building, or left free to move about. The standard is made of both cast and malleable iron.

The Shenon Hardware & Implement Company have succeeded Phil Shenon, at Salmon City, Idaho. The establishment is a new one, having been in operation but two months. They now occupy a double store, and have under construction a similar building, which they will devote to Harness shop, Tin shop and storage. The company handle a varied line, comprising Shelf and Heavy Hardware, Stoves, Tinware, Harness, Saddlery, Implements, Sporting Goods, Mining Machinery, Wagons, Carriages, &c.

The Anderson Hardware & Furniture Company, St. Mary's, Kan., who have been a corporation for a number of years, owing to the expiration of their charter have reincorporated under the same style, without any change in the management, which continues in charge of Geo. F. Anderson. A few months since improvements were made in the establishment, with a view to carrying a stock of House Furnishing Goods and Furniture, in addition to former lines.

Mr. Britton of the firm of A. H. Britton & Co., Concord, N. H., wholesale and retail Hardware, Stoves, Implements, Sporting Goods, &c., has bought the interest of his partner, and is now sole proprietor, though continuing the business under the same style.

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Current Hardware Prices.

REVISED AUGUST 8, 1899.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, both by the manufacturers and the jobbers.

Cut Prices.—*In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—
Domestic, ₱ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—
Ives' Patent.....25&5%
Taplin's Perfection.....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....₱ ℔ 7¼@7¾¢
Hay-Budden, Wrought.....8½@8¾¢
Horseshoe brand, Wrought.....9½@9¾¢
Samson.....₱ ℔ 7¼@8¢
Trenton, Wrought.....₱ ℔ 8¼@8¾¢

Imported—
Armitage's Mouse Hole.....8¾@9¼¢
Peter Wright's.....9½@9¾¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—
Common Double Spur..70&10@75&5%
Boring Machine Augers.....70&10@75&5%
Car Bits, 12-in. twist.....60&10&10@70%
Jennings' Pattern:
Auger Bits.....60&10&10@70%
Ford's Auger and Car Bits..40&10@40&10&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list.....40@40&10%
No. 30. R. Jennings' List..50&10@60%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits15&10@15&10&5%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....70%
Snell's Bell Hangers' Bits.....50%
Snell's Car Bits.....60&10&5@70%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—
Standard List .....60&10&10@70&5%

Expansive Bits—
Clark's small, $18; large, $26.....50&10%
Lavigne's Clark's Pattern, No. 1, ₱ doz., $26; No. 2, $18.....50&10%
Steer's No. 1, $26; No. 2, $18...40@40&5%
Swan's.....40@40&10%

Gimlet Bits—
Common Double Cut..gro. $2.75@3.25
German Pattern.....gro. $5.00@5.50
Double Cut, makers' lists.....50&5@50&10%

Hollow Augers—
Bonney's Adjustable, ₱ doz.....$18.00
Douglass'.....33⅓@33⅓&10%
Stearns', Common, No. 6.....10%
Stearns', Nos. 1 and 2.....20%

Ship Augers and Bits—
Ford's.....40&10@40&10&10%
Snell's.....40@40&10%
L'Hommedieu's.....15&10@15&10&10%
Watrous'.....40@40&10%

Awl Hafts, See *Hafts, Awl.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.10
Unhandled, Shouldered gro.63@66c
Unhandled, Patent.....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. 31@34c
Unhandled, Shouldered.gro.65@70c
Scratch Awls:
Handled, Common..gro. $3.00@3.75
Handled, Socket..gro. $11.00@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
First Quality, best brands.$5.25@5.50
First Quality, other brands$4.50@4.75
Jobbers' Special Brands:
Good Quality.....$4.25@4.50
Best Quality.....$5.00@5.25
Cheap Handled Axes .....$4.50@4.75
Good Handled Axes .....$5.00@5.25
Beveled, add 25c doz

Axle Grease—See *Grease, Axle.*

Axles—

	Iron.	Steel.	
Concord, loose collar	*5¼c*	*5 c*	5% cash
Concord, solid collar	*5¾c*	*5¼c*	
No. 1 Common	*4 c*	*3¾c*	
No. 1½ Com. New Style	*4½c*	*4¼c*	
No. 2, Solid Collar	*4¾c*	*4½c*	
Nos. 7, 8, 11 to 14		*60&5%*	
Nos. 7, 8, 11 to 14, 100 sets..extra			*10%*
Nos. 15 to 18			*50%*
Nos. 19 to 22			*70%*

Balances—

Sash—
Caldwell low list.....30%
Pullman's.....65%
Vanderbilt.....30%

Spring—
Spring Balances .....50@50&5%
Chatillon's Light Spg. Balances...40&10%
Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50%
Chatillon's Large D'a'.....30%

Barb Wire—See *Wire, Barb.*

Bars— Crow—
Steel Crowbars, 10 to 40 lb., per lb... 3@3¼c

Beams, Scale—
Scale Beams, List Jan. 12, '82.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters— Egg—
(Standard Co.), Dover No. 10, ₱ gro. $6. 5; No. 5, $5.75; No. 15, $14.00
(Taplin Mfg. Co.) Dover No. 50, ₱ gro. $5.25; No 100. $6.25; No. 102, $8.00; No. 150. ₱ doz. $1.50; No. 152 $2.00.
Lyon's, Standard 12-in.....₱ doz. $1.75
Wonder (S. S. & Co.) .....₱ doz. 75¢

Bellows—

Blacksmith—
Standard List.....70@70&5%

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*
Doz...	*$6.75*	*7.25*	*8.50*	*9.50*	*12.00*	*14.50*

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.75*	*6.75*

Net Prices.

Bells— Cow—
Ordinary goods.....75&10%
High grade.....70@70&10%
Jersey.....75&75&10%
Texas Star.....50&10%

Door—
Gong, Yankee.....60&10%
House, R. & E. Mfg. Co.'s.....50&10%
Lever and Pull, Sargent's.....45&10@45&10&5%

Hand—
Hand Bells, Polished.....65&10@70%
White Metal.....65&10@70%
Nickel Plated.....50&5@50&10&5%
Swiss .....65@65&10%

Miscellaneous—
Farm Bells..... lb. 2@2½c
Steel Alloy Church and School.....50&10@60%

Belting

Rubber—
Common Standard.....70&10@75%
Standard.....60&10@70%
Extra.....60@60&10%
High Grade.....60@60&10%

Leather—
Extra Heavy, Short Lap .....50&10%
Regular Short Lap .....60@60&5%
Standard .....60&10@60&10&5%
Light Standard.....70&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Brettell Tire Upsetter, $15.....50%
Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters....40@50%

Bicycle Goods—
Lane's Cycle Hanger.....33⅓&5%
John S. Leng's Son's 1899 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks— Tackle—
Common Wooden...75&10@75&10&5%
Eddy's Steel.....60&10@70%
Hartz Steel.....50&10@60%
Ford's Star Brand, Self Lubricating..70%
Hollow Steel, Ford's Pat. Star Brand...50&10%
Lane's Patent Automatic Lock and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards, Stove—
1899 List:
Zinc.....80%
Others.....40%

Bolts—

Carriage, Machine, &c.—
Common, list Jan. 30, '95.50@10@60&..
Norway Iron, $3.00, list Oct. 7, '84.. 75&10@75&10&5%
Phila. Eagle, $3.00 list.....80@30&10%
Bolt Ends, list Jan. 30, '95..... 60@60&10&....%
Machine, list June 12, '96..... 60@60&10&....

NOTE.—*Jobbers' prices on Bolts are now generally lower than manufacturers'.*

Door and Shutter—
Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.27*	*.30*	*.38*	*.53*	*.86*

Cast Iron Bottom, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.83*	*1.05*	*1.65*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.10*	*1.32*	*1.87*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.49*	*.77*	*.88*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz	*$0.44*	*.50*	*.61*	*.70*	*1.28*

Wrought Barrel.. ..75&5@75&10&5%
Wrought Barrel, Bronzed..60@60&5%
Wrought Flush, B. K.....50&10@70%
Wrought Shutter.....60@60&10&5%
Wrought Square Neck.....70@70&10%
Wrought Sunk.....60@60&10%
Ives' Patent Door.....62½@62½&10%

Stove and Plow—
Plow .....70@70&10%
Stove, list August 27, 1898.....65%
Note.—See Trade Report.

Tire—
Common, list Feb. 28, '83...65@65&....%
American Screw Company:
Norway Phila., list Oct. 16, '84.....70%
Eagle Phila., list Oct. 16, '84.....75%
Bay State, list Feb. 28, '83.....65%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84..... 70%
Eagle Phila., list Oct. 16, '84.....75%
Eclipse, list Feb. 28, '83.....65%
Port Chester Bolt & Nut Company
Empire, list Feb. 28, '83.....65%
Keystone Phila., list Oct. '84.....75%
Norway Phila., list Oct. '84.....70%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz..	*$3.50*	*4.50*	*5.00*	*6 50*
Inch		*2¼*		*2½*
Per Doz.....		*$7 50*		*10.25*

Enterprise Mfg. Co.....25@30%
No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.

Boring Machines—*See Machines, Boring.*

Boxes, Mitre—
Seavey's, each $4.00.....50&10%

Braces—
NOTE.—*Most Braces are sold at net prices.*

Common Ball, American	*$1.10@1.20*			
Barber's		60@60&10%		
Fray's Genuine Spofford's		50&10&5%		
Fray's No. 70 to 120, 81 to 123, 207 to 414		50&10&5%		
P., S. & W. Co., Peck's Patent		60&10&5@60&10&10%		

Brackets—
Cast Iron, plain..... 75@75&10%
Wrought Steel.....70&10@75%
Bradley's Wire Shelf.....75&10@80%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Wire Goods Co.....75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—
Hoosier.....₱ gro. $22.00@$24.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—
Wrought list Sept., '96.....30@40%
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad..... 60@60&10%
Fast Joint, Narrow.. ..... 60&10@60&10&10%
Loose Joint.....
Loose Pin.....
Mayer's Hinges.....
Parliament Butts..... } 75@75&10%

Wrought Steel—
Loose Joint.....
Table and Back Flaps..
Narrow and Broad.....
Inside Blind.....
Loose Pin..... } 75@75&5%
Loose Pin, Ball and Steeple Tip.... 80@80&5%
Bronzed Wrought Narrow and Inside Blind Butts.....50&10@50&10&5%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....10%
1200 series.....40%
200, 300, 600 and 900 series.40&10@50%
Hendryx Bronze:
700, 800 series.....40&10@50%
Hendryx Enameled.....40&10@50%

Calipers—See *Compasses.*

Calks, Toe—
Burke's, One Prong, Blunt.....5¢ } 10&5
Burke's, One Prong, Sharp.....6¢ } @10
Burke's, Two Prong, Blunt.....6¢ } &5&
Burke's, Two Prong, Sharp....7¢ } 5%

Can Openers—See *Openers, Can*

Cans, Milk—

Buffalo Pattern:	5	8	10 gal.	
....	$3.60	$4.00	.40%	
Illinois Pattern...	$3 00	3.10	3.50	.40%
Iowa Pattern.....	2.25	3.95	3.75	.40%
	20	80	40	qts.
New York Patt'rn	2.25	2.50	2.65	
Baltimore Patt'rn	2.35	2.50	2.75	

Cans, Oil—
Galvanized Blue Band, 1-gal., ₱ doz. $1.60@$1.80
S. S. & Co., Galvanized Family with faucet, 3-gal., ₱ gro. $54, 5-gal., $60; 10-gal., $180.00
Glass Oil.....₱ doz. $1.90@$2.20

Caps—Percussion—
Eley's E. B.....50c
G. D .....per M 32@34c
F. L.....per M 37@40c
G E..... per M 47@50c
Musket.....per M 57@60c

Primers—

Berdan Primers, $1.00 ..... 2%
B L. Caps (Sturtevant Shells) $1.00 ..... 2%
All other primers..... $1.00@$1.10

Carpet Stretchers—

See *Stretchers, Carpet.*

Cartridges—

B. B. Caps, Con., Ball Swgd. ..$1.90
B. B Caps, Round Ball...$1.12@1 18
Blank Cartridges:
22 C. F., $5 50..... 2%
32 C. F., $7 00..... 2%
22 cal. Rim, $1.50..... 2%
32 cal. Rim, $2.75..... 2%
Central Fire ..... 15&5&2%
Pistol and Rifle..... 25&5&2%
Primed Shells and Bullets...15&5&2%
Rim Fire Sporting..... 50&2%
Rim Fire, Military..... 15&5&2%

Casters—

Bed..... ..70&5@70&10%
Plate..... ..60@60&10%
Plate, part Brass 60%
Philadelphia..... 70&5@70&10%
Martin's Patent (Phœnix) ....60@60&5%
Payson's Anti-friction Furniture..... 70&10&5%
Payson's Anti-Friction Truck.60&10&5%
Standard Ball Bearing..... 50%
Tucker's Patent, low list..... 50@50&5%

Cattle Leaders—

See *Leaders, Cattle.*

Chain—

American Coil, Cask Lots:
5-16 ¼ 5-16 ⅜ 7-16 ½ 9-16
3.00 6.25 5.25 4.50 4.35 4.25 4.15
⅝ ¾ ⅞ 1 inch.
4.05 4.00 3.90 3.90 cents per lb.
Less than Cask lots add ¼c. per lb.
German Coil, list July 24, '97 .....
..... 60&10@60&10&10%
German Halter Chain, list July 24, '97..... ..60&10@60&10&10%
Trace, Wagon and Fancy Chains, list April, '98..... 60@—%
Jack Chain, list July 10, '98:
Iron..... 70@70&10%
Brass ..... 50&10@50%
Gal. Pump Chain..... *lb.* 4¼@4¾c
Breast, Hitching and Rein Chains
Covert Sad. Works..... 70%
Covert Mfg. Co.:
Breast..... 40&2%
Halter..... 40&2%
Heel..... 40&2%
Rein..... 40&2%
Stallion..... 40&2%
Oneida Community:
Niagara and Eureka Weldless Coil and Halters..... ..65@65&10%
Niagara and Eureka Welded Cow Ties..... 55&5@60%
American Coil and Halters..55&5@60%
American Cow Ties..... 50@50&10%

Chalk—(From Jobbers.)

Carpenters', Blue.....*gro. 50@52c*
Carpenters', Red ... ..*gro. 45@17c*
Carpenters', White .....*gro. 40@42c*
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—

Bardsley's..... 40%
Columbia..... 50&10%
Eclipse..... 60@60&10%

Chisels—

Socket Framing and Firmer

Standard List.....75&5@75&10%
Buck Bros..... 30%
Charles Buck..... 30%
Swan's..... 75@75&5&2½%
L. & I. J. White..... 30@30&5%

Tanged—

Tanged Firmers..... 40&10@50%
Buck Bros..... 30%
Charles Buck..... 30%
L. & I. J. White, Tanged..... 25&5%

Cold—

Cold Chisels, good quality lb. 14@16c
Cold Chisels, fair quality.... *lb. 12c*
Cold Chisels, ordinary.....*lb. 7@7½c*

Chucks—

Beach Pat., each $8.00..... 20%
Skinner Patent Chucks:
Combination Lathe Chucks..... 40%
Drill Chucks..... 30%
Independent Lathe Chucks..... 40%
Improved Planer Chucks..... 20%
Universal Lathe Chucks..... 40%
Face Plate Jaws..... 35%
Union Mfg. Co.:
Combination..... 40%
Czar Drill 30%
Geared Scroll..... 33⅓%
Independent..... 40%
Union Drill..... 30%
Universal..... 40%
Face Plate Jaws..... 35%

Clamps—

Adjustable, Hammers'.....20@20&5%
Adjustable, Stearns'..... 30%
Cabinet, Sargent's .....45&10@50&10%
Carriage Makers', P., S. & W. Co..40&10%
Carriage Makers', Sargent's..... 50&10@50&10&5%
Bessy, Parallel..... ....$3½&10%
Saw Clamps, see *Vises, Saw Filers'.*
Stearns Malleable, with Wrought Iron Screw..... 75%
Stearns Steel..... 33⅓%

Cleaners, Walk—

Star Socket, All Steel....₱ doz. $4 00 net
Star Shank, All Steel....₱ doz. $3.75 net

Cleavers, Butchers'—

Foster Bros.,Flat Hds., 30%; Rd.Hds., 35%
New Haven Edge Tool Co.'s.....40%
Nichols Bros., Flat hdl., 30%; Rd. hdl.,40%
Fayette R. Plumb..... 25%
P., S. & W..... ..33⅓&5@33⅓&10%
L. & I. J. White..... ..25%

Clippers—

Chicago Flexible Shaft Company:
Handy Toilet..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $8.40
Monitor Toilet..... ₱ doz. $9.00
Stewart's Patent..... ₱ doz. $10.00

Clips, Axle—

Eagle and Superior ¼ and 5-16 inch..... .....70&10@75%
Norway, ¼ and 5-16 inch...70@70&5%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.).....
70@70&5%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Brass, Pope & Stevens' list.....40%
Embossed,Gilt,Pope&Stevens'list30&10%
Leather, Pope & Stevens' list..... 40%

Compasses, Dividers, &c.

Ordinary Goods .....70&10@75%
Bemis & Call Hdw. & Tool Co.:
Dividers..... 65%
Calipers, Call's Patent Inside..... 55%
Calipers, Double..... 70%
Calipers, Inside or Outside..... 70%
Calipers, Wing..... 60%
Compasses..... 50&5%
J. Stevens A. & T. Co..... 25&10%

Coolers, Water—

S. S. & Co.: 2-gal., $15.40; 3-gal., $17.00; 4-gal., $19.85; 6-gal., $25.50.

Coopers' Tools—

See *Tools, Coopers'.*

Cord— Sash—

Braided, Drab..... *lb.* 21@23c
Braided, White, lb..... 15@20c
Cable Laid Italian..lb. A, 18c; B, 16c
Common India..... *lb.* 8½@9c
Cotton Sash Cord, Twisted....10@15c
Patent Russia ..... *lb.* 12 @13c
Cable Laid Russia..... *lb.* 13½@14c
India Hemp, Braided..... *lb.* 14@15c
India Hemp ..... *lb.* 9@10c
Patent India, ... *lb.* 10 c
Pearl Braided, cotton ..... ₱ ℔ 16¢
Massachusetts, White ..... ₱ ℔ 20¢
Massachusetts, Drab..... ₱ ℔ 24¢
Eddystone Braided Cotton..... ₱ ℔ 18¢
Harmony Cable Laid Italian..... ₱ ℔ 18¢
Ossawan Mills:
Crown, Solid Braided White... ₱ ℔ 17¢
Braided, Giant, White..... ₱ ℔ 16¢
Peerless:
Cable Laid Italian..... 16¢
Cable Laid Russian..... 13¢
Cable Laid India..... 11¢
Braided India..... 18¢
Phœnix, White..... ..... 17¢
Samson:
Braided, Drab Cotton..... ₱ ℔ 31¢
Braided, Italian Hemp..... ₱ ℔ 31¢
Braided, Linen ..... ₱ ℔ 44¢
Braided, White Cotton, Spot...₱ ℔ 27¢
Silver Lake:
A quality, Drab, 40¢..... 15&10%
A quality, White, 35¢..... 15&10%
B quality, Drab, 35¢..... 15&1 %
B quality, White, 30¢..... 15& 0%
Italian Hemp, 40¢ ..... 15&10%
Linen, 57½¢..... 15&10%

Wire, Picture—

Braided or Twisted .. .80@80&10%

Corn Knives and Cutters

—See Knives, Corn.

Crackers, Nut—

Acme, Japanned, ₱ gr. $30..... 40%
Acme, Nickel Plated, ₱ gr. $30..... 20%
Turner & Seymour Mfg. Co..... 50%

Cradles—

Grain..... *55%*

Crayons—

White Round Crayons, gross...5@6c
Cases, 100 gro., $4.50@$5 00, at factory.
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden ..... ₱ doz. $10.00

Cutters— Meat—

American..... 30%

Nos.	1	2	4	8	5
Each	$5	$7	$10	$25	$50	$60

Connecticut:

Nos.	0	1	8	10	12
each	$1.75	2.25	3.00	8.00	8.50

Enterprise..... 25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz..... 33⅓%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Hale's, ₱ doz..... 70%

Nos.	11	12	13
	$27.00	$33.00	$45.00

Home No. 1, ₱ doz. $26.00..... 60%
Little Giant, ₱ doz..... 50&10%

Nos.	305	310	312	340	322
	$35.00	$48.00	$44.00	$74.00	$68.00

Miles' Challenge, ₱ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

New Triumph No. 605, ₱ doz. $24.00... 33⅓&5%
Woodruff's, ₱ doz 33⅓%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers..... ..25@30%

Slaw and Kraut—

Henry Disston & Son's:
Slaw, Corn Grater, &c..... 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9..55%
Kraut Cutters 36 x 12, 40 x 12..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters..... 50@50&10%
Slaw Cutters, 1 Knife, ₱ gr....$15@$18
Slaw Cutters, 2 Knife, ₱ gr...$20@$27

Tobacco—

All Iron, Cheap.....*doz. $4.50@$5.00*
Enterprise..... 25@30%
National, ₱ doz. $21.00..... 40%
Sargent's, ₱ doz. $24.00..... 60@60&10%

Washer—

Appleton's, ₱ doz. $16.00..... 60&10@60&10&10%
Bonney's..... ₱ doz. $4.75

Diggers, Post Hole, &c.—

Iwan's Improved Post Hole Auger.40&5%
Iwan's Perfection Post Hole Digger.... ₱ doz. $10.00
Samson, ₱ doz. $34.00..... 25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—

See *Checks, Door.*

Door Springs—

See *Springs, Door.*

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $12; No. 3, $11; No. 4, $12

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmiths' Drill..each $1.50@$1.60
Blacksmiths' Self-feeding.....*each $5.00@6.00*
Bench Drills, Stearns'.....50@50&10%
Breast, Millers Falls, each $3.00 .....25%
Breast, P., S. & W..... 40&10%
Goodell Automatic Drills..40&5@40&10%
Ratchet, Bignall & Keeler..... 30&5%
Ratchet, Curtis & Curtis 25%
Ratchet, Ingersoll's..... ..... 25%
Ratchet, Parker's 40%
Ratchet, Weston's..... 20@25%
Ratchet, Whitney's..... 20&10%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—

Standard List.....60&10&10@70&5%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—

See *Pans, Dripping.*

Drivers, Screw—

Balsey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros..... 30%
Buck Bros' Screw Driver Bits..... 27½%
Champion..... 40&10%
Disston's Flat Blade, Elec ric, &c....70%
Douglass Mfg. Co..... 20@20&10%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay & Parsons' Ratchet..... 35%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Mayhew's Black Handle..... 50%
Mayhew's Monarch..... 45&10%
New England Specialty Co..... 50&10%
New York, Manhattan and Handy...20%
Sargent & Co.'s:
Nos. 1, 20, 40 and 60.50&10@50&10&5%
Nos. 50 and 55.....50&10&10@60&5%
Screw Driver Bits..... ₱ doz. 50@70¢
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles..... 70&10%
No. 86..... 75&10%

Egg Beaters—See *Beaters, Egg.*

Emery—*Nos. 4 to 54 to Flour, CF:*

	46 gro.	*1.80 gro.*	*F.FF.*
Kegs..... *lb.*	4½c	5 c	3 c
½ Kegs ....*lb.*	4¾c	5¼c	3¼c
¼ Kegs ....*lb.*	5 c	5½c	3½c
10-lb cans, 10 in case.....	6 c	6½c	5½c
10-lb.cans, less than 10 ....*10*	c	10 c	8c

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—

See *Pins, Escutcheon.*

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's..... ....50&10%

Faucets—

Cork Lined ..... 70&5@70&10&5%
Metallic Key, Leather Lined..... 65&10@70%
Red Cedar ..... 50@50&10%
B. & L. B. Co.:
West's Lock, Open and Shut Key50&10%
John Sommer's Peerless Tin Key.... 40%
John Sommer's Boss Tin Key..... 50%
John Sommer's No Brand Metal Key.60%
John Sommer's W. P. Metal Key.....40%
John Sommer's Diamond Lock..... 40%
John Sommer's I. X. L. Cork Lined..50%
John Sommer's Reliable Cork Lined.60%
John Sommer's Common Cork Lined.70%
John Sommer's Chicago Cork Lined..60%
John Sommer's O. K. Cork Lined.....50%
John Sommer's Perfection Cedar....40%
Star..... 60@60&5%
Star, Metal Plug, new list.....40@40&5%
Stearns' Wood, No. 200, Wood-lined Key..... 60%
Stearns' Matchless, Wood, No. 300 ..... 60&10%
Stearns' Gem, Wood, No. 400..... 70%
Lockport, Metal Plug, reduced list.60&5%
Self Measuring:
Enterprise, ₱ doz. $36.00 ..... 40%
Lane's, ₱ doz. $36.00..... 33⅓%
National Measuring, ₱ doz. $36.00...40%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised June 1, 1899.
Best Brands.....70@70&10&10%
Good Brands.....75&10@80&5%
Fair Brands .....80&5@80&10%
Second Quality.....80&10@85%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97..... .....25%

Fixtures, Grindstone—

Net Prices:

Inch....	*15*	*17*	*19*	*21*	*24*
Per doz.	*$2.50*	*2 60*	*2.95*	*3.35*	*4.50*

Stowell's Grant Grindstone Hanger.... ₱ doz. $6.00@7.00
Stowell's Grindstone Fixtures.....55&10%
P., S. & W. Co..... 50&10&10%
Reading Hardware Co..... 30&20&10%
Sargent's Patent.....70&10@70&10&10%

Fluting Machines—

See *Machines, Fluting.*

Fodder Squeezers—

See *Squeezers, Fodder.*

Forks—

Old, or 1895 list.
Hay, Manure, &c.60&10@60&10&5%
1898, or High list.
Hay, 2 tine..... .....70&2%
Hay, 3 tine ..... 70&2%
Manure, 4 tine ..... 66⅔&20&2%
Manure, 5 and 6 tine.....70&10&2%
Spading..... .....70&15&2%
Victor, Hay..... ..60&33⅓&2½&2%
Victor, Manure..... ..... 75 &5&2%
Victor, Header..... 70&12½&2%
Champion, Hay..... 70&10&2%
Champion, Manure..... 75&2%
Columbia, Hay..... ..70&7½&2%
Columbia, Manure ..... 75&5&2%
Columbia, Spading ..... 80&5&25&2%
Hawkeye Wood Barley 4 tine ₱ doz $5.00; 6 tine, $5.50.
Plated.—See *Spoons.*

1899 or high list

Frames—

Saw—

Red, Polished and Varnished..doz. $1 00@$1 10
White.....*gro. $3.25@$3.50*

Screens, Window and Door—

Bonanza Window Screens.....60@60&5%
Phillips' Window Screen Frames..60&5%
Porter's Extension Window Screens.. 60&5%
Stearns' Gem Window Screen Frames, per doz., No. 25, $1.75; No. 30, ₱ .80; No. 35, $1.85; No. 40 $1.90.
Wabash Spring Adj. Screen..... 50%
Warner's Screen Corner Irons, Nos. 0B&00B..... 50%

Freezers, Ice Cream—

Qts...	*2*	*3*	*4*	*6*	*8*	*10*
Best.	*$1.40*	*1 60*	*1.85*	*2.30*	*3.00*	*3.90*
Good	*$1 25*	*1.35*	*1.70*	*2 05*	*2 65*	*3.50*
Fair.	*$1.00*	*1.10*	*1 30*	*1.75*	*2.30*	*2.90*

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—

	Per 1000 Feet.
Hemp Fuse	*$2.60*
Cotton Fuse.....	*2.90*
Single Taped Fuse.....	*3.50*
Double Taped Fuse.....	*4.70*
Triple Taped Fuse.....	*5.70*

50%

Gates, Molasses and Oil—

Stebbin's..... *80&20@85%*
Stearns' Molasses and Oil..... 50%

Gauges—

Marking, Mortise, &c......
60&10@60&10&10%
Barrett's Comb. Roller Gauge..... ₱ doz. $6.75@7.35
Stanley R. & L. Co.'s Butt & Rabbet Gauge..... 25&10%
Wire, Brown & Sharpe's..... 25%
Wire, Morse's..... 25%
Wire, P., S. & W. Co..... ....10&10%

Gimlets—
Nail, Metal, Assorted, gro. $1.50@1.75
Spike, Metal, Assorted gro. $3.00@3 50
Nail, Wood Handled, Assorted, gro $4.00@4 50
Spike, Wood Handled, Assorted gro. $5 00@5.25

Glass, American Window
List Jan. 1, 1898.
Small lots from store:
Eastern ....80&20%
Western ....80&20@85&5%
From Factory, with Frt. Allowance:
Carloads ....80&20%
1000 boxes or more, Gulf Ports ....85&10%
3000 boxes or more ....85@85&2½%
5000 boxes or more ....85&5%

Glue—Liquid, Fish—
List A, Bottles or Cans, with Brush. 37½@50%
List B, Cans (½ pts., pts., qts.) ....33⅓@38%
List C, Cans (½ gal., gal.) ....25@45%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Allerton's Axle:
1 lb Tins, ₱ gr. $9.00
3 lb Tin Pails, ₱ doz., $2.00; 5 lb, $3.00; 10 lb, $6.00.
25 lb wood pails ....₱ doz. $12.00
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs..₱ doz. 1 lb $1.20; 2 lb $2.00
Lower grades, special brands, ₱ gr. $5.00@6.50

Grindstone Fixtures—
See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
	gro.
Peg Patent, Leather Top	$1.90@5.25
Peg Patent, Plain Top	$3 50@3 75
Sewing, Brass Ferrule	$1 50@1 60
Saddlers', Brass Ferrule	$1 35@1 45
Peg, Common	$1.25@1 35
Brad, Common	$1.35@1.50

Halters and Ties—
Covert Mfg. Co., Web ....45&2%
Covert Mfg. Co., Jute Rope ....45&2%
Covert Mfg. Co., Sisal Rope ....35&2%
Covert's Saddlery Works', 96 list 70%

Hammers—
Handled Hammers—
Heller's Machinists' ....40@40&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ....40&10%
Pecx, Stow & Wilcox ....40@40&5%
Fayette R. Plumb:
Artisans' Choice, A. E. Nail..33⅓&7½%
Engineers' and B. S. Hand ....50&10%
Machinists' Hammers ....50&10%
A. E. & A. E., Bell Face Nail...33⅓&7½%
Sargent's C. S. New List ....45&5%

Heavy Hammers and Sledges—
3 lb. and under...lb. 45c
3 to 5 lb ....lb. 35c } 75&10@80%
Over 5 lb ....lb. 30c
Note.—Lower net prices sometimes made by jobbers.
Wilkinson's Smiths' ....9½c@10c lb

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Hoe, Rake, Fork, &c.,60&10@60&10&5%
Shovel, &c., Wood D Handle...60&10%

Cross-Cut Saw Handles—
Atkins' 40%
Champion ....45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted ....gro. $2 25@$2 50
Auger, large ....gro. $2 75@$3 00
Brad Awl ....gro. $1 40@$1.50
Chisel Handles:
Apple Firmer, gro ass'd. $2.25@$2 50; large, $2.75@$3.00.
Hickory Firmer, gro ass'd, $2.25@$2.50; large, $3 50@$3.75.
Socket, gro. ass'd, Firmer, $1.50@$1.60; Framing, $2 50@$2 75.
File, assorted ....gro. $1 00@$1 15
Hammer, Hatchet, Axe, &c...60&10%
Hoe, Rake and Fork ....60&10@60&10&5%
Shovel and Spade, Wood D H'dle.. ....60&10%
Hand Saw, Varnished, doz. 75@80c
Not Varnished.. ....55@60c
Plane Handles:
Jack, doz. 25@25c; Jack Bolted.. ....55@60c
Fore, doz. 35@38c; Fore, Bolted.. ....70@75c

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Doz	$1.28	1.68	2.16	2.64	3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch	3	4	5	6
Doz	$3.36	3.74	4 84	6.16

Bigelow & Dowse Co.:
Paragon, No. 1, $3.50; No. 2, $4.50; No. 3, $5.50 ₱ doz.
Chicago Spring Butt Co.:
Friction ....35@35&10%
Oscillating ....35@35&10%
Big Twin ....35@35&10%
Chisholm & Moore Mfg. Co.:
Advance 55%
Cleveland 60%
Baggage Car Door 50%
Elevator 40%
Railroad 55%
Lane Bros.:
Parlor, Standard ....40&5&2½%
Parlor, New Model ....40&2½%
Barn Door, Standard ....60&2½%
Covered ....50&10&10%
Special ....60&5%
Lawrence Bros.:
Crown ....60&10%
New York ....60&10@60&10&5%
Sterling ....60&10%
McKinney Mfg. Co.:
No. 2, Standard, $18 ....60&10%
No. 1, Special, $13 ....60&10%
E. C. Stearns & Co.:
Gem Parlor Sliding Door 60%
Challenge 60%
Steel Single Track Parlor ....$6.30&20%
Royal Parlor Door 60%
Warner's Pat 40%
Warner's Imp'd Single 50%
Stowell Mfg. and Foundry Co.:
Badger ....60&10%
Baggage Car Door 33⅓%
Climax Anti-Friction ....55&5%
Elevator 40%
Interstate ....60&15%
Magic ....50&10%
Matchless ....60&10%
Nansen ....60&10%
Parlor Door ....50&10%
Railroad ....55&5%
Street Car Door ....50&10%
Steel, Nos. 300, 400, 500 ....45&15%
Wild West ....50&5%
Zenith for Wood Track ....55&5%
Taylor & Boggis Foundry Co.:
Kidder's ....50@50&10%
Van Wagoner & Williams Hdw Co.:
American Trackless ....33⅓&10%
Wilcox Mfg. Co.:
Aurora Steel Endless 60%
Bike Roller Bearing ....60&10&10%
Bike Steel Endless ....60&10&10%
C. J. Roller Bearing ....60&10&10%
Cycle Ball Bearing ....50&10%
Dye Steel ....60&10%
Economical Single Track ....50&10&5%
L. T. Roller Bearing 70%
New Era ....50&10%
New Richards 60%
O. K. Roller Bearing 70%
Prindle Improved ....60&10%
Richards' Improved ....60&10%
Richards' Single Track ....50&10%
Wilcox Dwarf Roller Bearing ....40&10%
Wilcox-Ives ....60&10%
Wilcox Tandem Roller Bearing ....60&10%
Wilcox Trolley Ball Bearing ....40&10%
Wilcox Trolley Roller Bearing 50%
Wilcox Trolley Roller Bearing Fire ....40&10%
Wood Track 60%

Extra 5&10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp, ₱ doz. $1.10 ....40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands ....40&12½@50&5%
Cheaper Brands ....50&10@60&5%
Note.—Net prices often made.

Hay and Straw Knives—
See *Knives.*

Hinges—
Blind Hinges—
Lull & Porter:

No.	1	1½	2	2½
Doz. pair	$0 68	.63	.59	.52

1868 Old Pattern:

No.	1	3	5
Doz. pair	$0.74	1.38	2.67

Parker ....75&10@75&10&5%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ....10%
Reading's Gravity ....75&10%
Sargent's, Nos. 1, 3, 5, 11, 13..75@75&10%
Wrightsville H'dware Co.:
Acme, Lull & Porter 75%
Buffalo Gravity Locking, Nos. 1, 3 and 5 ....75%
Champion Gravity Locking, No. 75.80%
1868, Old Pat'n, Nos. 1, 3 & 5...75&10%
Tip Pattern, Nos. 1, 3 and 5....75&10%
Double Locking, Nos. 20 and 25..70&10%
Empire, Nos. 101 and 103 ....70%
Niagara Gravity Locking, Nos. 1, 3 and 5 ....75&15&5%
Noiseless, Nos. 50, 60, 65 and 55..75&5%
O. S. Lull & Porter ....75&5%
Pioneer, Nos. 060, 45 and 5½ ....75&5%
Steamboat Gravity Locking, No. 10.. 80%
Stanley's Steel Gravity Blind Hinges, ₱ doz. sets $1.30 ....40&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$1.40	1.75	3.25
Hinges only	0.92	1.40	2.40
Latches only	0.46	.46	.80

New England:
With Latch ....doz. $1.45@1 50
Without Latch ....doz. $1.30@1.35
Reversible Self-Closing:
With Latch ....doz. $1.70@1.75
Without Latch ....doz. $1.30@1.35
Western:
With Latch ....doz. $1.75@1.80
Without Latch ....$0.75@$0.78

Spring Hinges—
Holdback, Cast Iron ....gro. $6.50@6.75
Non-Holdback, Cast Iron ....gro. $5.50@$5.75
J. Bardsley:
Bardsley's Patent Checking 15%
Bommer Bros.:
Bommer's 40%
Chicago Spring Butt Co.:
Chicago 30%
Garden City Engine House 30%
Keene's Saloon Door 30%
Lawson Mfg. Co.:
Matchless 25%
Matchless Pivot 40%
Payson Mfg. Co.:
Oblique, Dbl. Acting ....50@50&5%
E. C. Stearns & Co.:
Nos 45 and 51 ....75%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₱ gr. $12.50
Ideal, No. 4 ....₱ gr. $9.00
New Idea No. 1 ....₱ gr. $9.00
New Idea, Double Acting 45%
Van Wagoner & Williams Hdw. Co.:
Acme ....30&5%
American 30%
Columbia, No. 14 ....₱ gr. $8.00
Columbia, No. 18 ....₱ gr. $24.00
Crown 30%
Gem 30%
Knoxall ....₱ gr. $9.00
Oxford 30%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar. 15, 1898:
Light Strap Hinges 70%
Heavy Strap Hinges ....70&10%
Light T Hinges ....60&5%
Heavy T Hinges 66⅔%
Extra Heavy T Hinges 70%
Extra 5@10@25
NOTE.—*Change in base discounts.*
Rolled Plate ....70@70&10%
Screw Hook and Strap. { *6 to 12 in..lb 3¼@3½c; 1½ to 20 in..lb 3 @3¼c; 22 to 36 in..lb 2.75@3 c*

Hoes—
Eye—
Scovil and Oval Pattern..60@60&10%
Grub, list Feb. 23, 1899 ....70&10@75%
D. & H. Scovil ....35@35&5%

Handled—
1895 or Old List:
Cotton, Field, Planters', &c. ....60&10@60&10&3%
1898 or High List:
Field and Garden ....60&10&5&2%
Ladies', Boys', Toy and Onion ....75&12½&2%
Street and Mortar ....75&15&2%
Cotton ....75&10&2½&2%
Planters' ....75&15&2%
Weeding ....75&10&5&2%
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe ....75&10&2%
Ft. Madison Crescent Cultivator Hoe, per doz $3.75
Ft. Madison Mattock Hoe, ₱ doz. $4.00
Ft. Madison Sprouting Hoe, ₱ doz. $4.50
Ft. Madison Dixie Tobacco Hoe ....75&10%&2%
Kretsinger's Cut Easy, per doz $4.50
Warren Hoe ....60&10%

Hog Rings and Ringers—
See *Rings and Ringers.*

Hoisting Apparatus—
See *Machines, Hoisting.*

Hollow Ware—
See *Ware, Hollow.*

Holders—
Bit—
Angular, ₱ doz. $24.00 ....45&10%

File and Tool—
Nicholson File Holders and File Handles 33⅓%

Hooks
Cast Iron—
Bird Cage, Reading ....
Bird Cage, Sargent's List ....66⅔@70%
Clothes Line, Sargent's List ....50@50&5%
Ceiling, Sargent's List ....50@50&5%
Clothes Line, Stowell's ....70&5%
Clothes Line, Reading List ....65&10@65&10&10%
Coat and Hat, Stowell's ....70&5%
Coat and Hat, Reading ....70@75%
Coat and Hat, Sargent's List ....50&10%
Coat and Hat, Wrightsville ....65&10%
Harness, Reading List ....70&10@75%

Wire—
Belt ....80&10@80&20%
Atlas, Coat and Hat ....50@50&10%
Wire Coat and Hat:
Acme ....60@60&5%
B. B ....70@70&5%
Gem 66⅔%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, or Case, Octagon Steel ....doz. $2.00@2.15
Cotton ....doz. $1.00@1.10
Picture, T. & S. Mfg. Co 75%
Tassel, T. & S. Mfg. Co ....60&10%
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.00; Medium, $5 50; Heavy, $6.00

Grass	Nos 1	2	3	4
Best	$1.60	1.75	2.00	
Common	$1.50	1.50	1.50	1.75
Potato and Manure			75&15%	

Whiffletree ....lb. 4¾c
Hooks and Eyes:
Brass ....70&10@75%
Malleable Iron ....75&10%
Covert Saddlery Works' Self Locking Gate and Door Hook, 4 in. ₱ gross $13.00; 6 in. $17.20 ....70%
Crown Picture 60%
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—
See *Shoes, Horse.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition ....ft. 4¾@ 5½c
3-ply Standard ....ft. 5½@ 6 c
4-ply Standard ....ft. 6½@ 6¾c
3-ply extra ....ft. 6¾@ 7½c
4-ply extra ....ft. 7½@ 8½c
High Grade ....ft 9 @11 c
Cotton Garden, ¾-in., coupled:
Low Grade ....ft. 5½@6c
Fair quality ....ft. 7 c
Good quality ....ft. 8 @ 8½c

Irons—Sad—
From 4 to 10 ....lb 2½@2¾c
B B. Sad Irons ....lb. 2¾c
Chinese Laundry ....lb. 4¼@4½c
Chinese Sad ....lb. 3¼@3½c
Mrs. Potts', per set:

Nos.	50	55	60	65
	70@77c	65@72c	76@81c	70@76c

New England Pressing ....lb. 3c

Soldering—
Soldering Coppers ....lb. 25@26c
Covert Mfg. Co ....30&2%

Pinking—
Pinking Irons ....doz. 50@60c

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel ....45&2%
Daisy, ₱ doz. $12.00 ....70%
Lockport ....40@40&10%
Victor, ₱ doz. $20.00 ....70%
Lane's Steel 33⅓%

Kettles—
Brass, Spun, Plain, list Jan. 10, '99 15@20%
Enameled and Tea—See *Ware, Hollow.*

Knife Sharpeners—
See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Dick's Butcher Knives 40%
Foster Bros.' Butcher, &c 35%
Nichols' Butcher Knives 50%
Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.
Hay and Straw—See *Hay Knives.*

Corn—
Ft. Madison Cut-Easy, ₱ doz $3.25

Drawing—
Standard List ....75&5@75&10%
Adjustable Handle ....25@33⅓%
Bradley's 33%
Swan's ....75@75&5&2½%
Watrous ....30&10@40%
L. & I. J. White ....20&5@25%
Cautelo's Folding ....50@50&5%

Hay and Straw—
Blizzard, from Jobbers ....$5.75@6.00
Iwan's Sickle Edge ....₱ doz. $10.50
Lightning, from Jobbers ....$6.50@7.00

Mincing—
Buffalo ....₱ gro. $15.00
Smith's, ₱ doz., Single, $2; Double, $3 ....45@50%

Miscellaneous—
Farriers' ....doz. $2 00@3 00
Westenholme's ....₱ doz. $3.00@3 25

Knobs—
Base, 2¼-inch, Birch, Rubber tip, gro ....$1.20@1.25
Carriage, Jap, all sizes..gro. 27@30c
Door, Mineral ....doz. 62@65c
Door, Por. Jap'd ....doz. 75@78c
Door, Por. Nickel ....doz $1 70@1.80
Bardsley's Wood Door, Shutter, &c 15%
Picture, Sargent's ....70&10%
Snow's Victor ....50&10%

Ladies—Melting—
P., S. & W ....35&10@40%
Reading ....50&10%
Sargent's ....60@60&10%

Lanterns—Tubular—

	Doz.	
Regular Tubular	$3.00	40&5@
Side Lift Tubular	$3 50	40&10&5%
Square Lift Tubular	$3.50	

Meyrose S de Lift Tubular, doz. $8.50 ....50&10&5%

Bull's Eye Police—
2¾-inch flash light ....doz. $3.50@3.75
3-inch flash light ....doz. $4.00@4.25
2¾-inch regular ....doz. $3.25@3.50
3-inch regular ....doz. $3.50@3.75

Latches, Thumb—
Roggin's Latches ....doz. 28c@30c

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Small ....doz. 45c; large, 50c
Covert Mfg. Co ....45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Dickson:
3 x 4 it. x ¼.....₩ 100 $10.00
Other sizes, Iron.....70&10&10%
Other sizes, Brass.....70&10%
Excelsior.....60@60&10%
Payson's:
Solid Grip Nos. 303 and 304, ₩ 100, $11.00
Other sizes.....70&10%

Lines—
Wire Clothes, Nos... 18 19 20
100 feet.....$2.50 2 25 2 00
75 feet.....$1.50
Ossawan Mills.
Crown Solid Braided Chalk.....33⅓%
Mason's, No. 0 to No. 5.....33⅓%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gr.....30%

Locks, &c.— Cabinet—
Cabinet Locks.....33⅓@40%

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading.....60@60&10%
R. & E. Mfg. Co.....50&10@60&5%
Sargent & Co.....60@60&10%
S. B. & Co., Locks, Knobs, &c .40@40&5%
Snow's Victor.....50&10%

Elevator—
Stowell's.....33⅓%

Padlocks—
Wrought Iron, list Dec. 3, '97.....
70c5@70c10c5%
Dog Collar, S. B. Co.....40%
R. & E. Mfg. Co. Wrt. Steel a d Brass.50%
S. B. & Co.....40%

Sash, &c.—
Fitch's Patent.....65&10%
Ives' Patent.....62½&10@66⅔&10%
Payson's Perfect.....70%
Payson's Signal (new list).....75&10%
Reading.....60&10&10@70%

Machines—

Boring—
	Without Augers. Upright.	Angular.
Douglas	$2.50	$3.00
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75

Fluting—
Crown Jewel, 6 in.....$2.50@2.75

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.20%

Washing—
Wayne American, ₩ doz. $27.00
Western Star, No. 2, ₩ doz. 28.00
Western Star, No. 3, ₩ doz. 30.00
St. Louis, No. 41, ₩ doz.. 60.00
Carload lots 10% off, freight allowed.

Mallets—
Hickory.....60@50&10%
Lignumvitæ.....50@50&10%
Tinners', Hickory and Applewood, doz.....50@55c
Fiber Head, Stearns'.....30&10%

Mattocks—
List Feb. 25, 1899...60&10@60&10&10%

Meat Cutters—
See *Cutters, Meat.*

Milk Cans—See *Cans, Milk.*

Mills— Coffee—
Box and Side, list Jan. 1, '88.....
60&10@60&10&10%
Net prices are often made on some goods which are lower than above discounts.
Enterprise Mfg. Co., list Jan. 17, '93..30%
National, list Jan. 1, '94.....30%
Parker's Columbia and Victor.....60&10%
Parker's Upright.....30&10@40%
Swift, Lane Bros.....30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers, Lawn—
Net prices are generally quoted.
	10	12	14	16-inch
Cheap	$1.50@$1.60,	all sizes.		
Good	2.50	2.75	3.00	3.25
High Grade	3.50	3.75	4.00	4.25

Pennsylvania and Continental.....60&10&10%
Philadelphia:
All Styles except A and E.....70&10%
Style A, all Steel.....60&10%
Style E, Low Wheel.....60&10%
Style E, High Wheel.....60&10%
Racine.....60&10&10%

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899..
80&10@80&10&5%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—
Nos.	6	7	8	9	10
A. C.	25¢	23¢	22¢	21¢	21¢
					40&10&5%
American	9½	9½	9½	9½	9½ ...net
Ausable	28¢	26¢	25¢	24¢	23¢
					40&10&10%
Capewell	19¢	18¢	17¢	16¢	16¢10&5%
C. B. K.	25¢	23¢	22¢	21¢	21¢...40%
Champlain	28¢	26¢	25¢	24¢	23¢
					40&5&2%
Clinton Fin.	19¢	17¢	16¢	15¢	14¢30&5%
Maud S.	25¢	23¢	22¢	21¢	21¢
					50&10&5%
Neponset	23¢	21¢	20¢	19¢	18¢...40%
Putnam	23¢	21¢	20¢	19¢	18¢.33⅓%
Vulcan	23¢	21¢	20¢	19¢	18¢...25%

Picture—
	1½	2	2½	3	3½ in.
Brass Head.	.90	.95	1.00	1.05	1.10 gro.
Por. Head...	.85	.90	.95	1.10	1.15 gro.

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—List Feb. 1, 1899.
List Feb. 1, '99.
Cold Punched. Off
Mfrs. or U S. Standard. list.
Hexagon, plain.....4.80@5.00c
Square, plain.....4.80@5.00c
Square, C. T & R.....4.60@4.80c
Hexagon, C. T. & R.....5.10@5.30c
Hot Pressed:
Mfrs., U S. or Nar. Gauge Stan'd. Square.....5 00@5.20c
Hexagon.....5 40@5 60c

Oakum—
Best or Government.....lb. 5¾c
Navy.....lb. 4¾c
U. S. Navy.....lb. 5¼c
Plumbers' Spun Navy.....8¾c
In carload lots ¼c lb. off f.o b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....50&10@60%
Tin or Steel.....70@70c10%
Zinc.....70@70c10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list.....50&10%
Wilmot & Hobbs Mfg. Co.....70@75%

Openers, Can—
French.....doz. 35c
Iron Handle.....doz. 60@75c
National, ₩ gro.....$1.75@$2.00
Sardine Scissors.....₩ doz. $2.00@$2.10
Sprague, Iron or Wood Handles.....₩ doz. 40@45¢
Stowell's.....75&10%

Packing—

Rubber—
Standard, fair quality.....70&10@75%
Inferior quality.....75&10@80%
Extra.....60&5@60&10&5%
Jenkins' Standard, ₩ lb 80¢....25@25&5%

Miscellaneous—
American Packing.....9@10c lb.
Cotton Packing.....13@14c lb.
Italian Packing.....10½@11¼c lb.
Jute.....5@5¼c lb.
Russia Packing.....12@13c lb.

Pails—

Creamery—
S. S. & Co., with gauges.. No 1 $6.50; No. 2, $7.00 ₩ doz.

Galvanized—
Inch	10	12	14
Water, Standard, gro	$21.00	$23 00	$25.00
Water, Competition, gro	20.00	22.00	24.00
Fire, Rd. Bottom, gro	28.00	31.00	33.00
Well, gro	19.00	21.00	24.00

Pans—

Dripping—
Large Sizes.....lb. 4¾c
Small Sizes.....lb. 5¼c

Fry—
Standard List.....80@80&10%

Roasting and Baking—
Regal, S. S. & Co., ₩ doz., Nos. 5, $4.25; 10, $4.75; 20 $5.25; 50, $5.75
Simplex, ₩ doz., No. 40, $29.50; 50, $33.00; 60, $36 00.

Paper—

Building Paper—
	Per roll
Rosin Sized Sheathing :	*500 sq. ft.*
Light wt , 20 sq. ft. to lb	$0 35@0.40
Medium wt., 12 sq. ft. to lb	$0.55@0.60
Heavy wt , extra quality	$0.95@1.05
Barrett's Water Proof Sheathing	$1 35@1.75
Medium Grades Water Proof Sheathing	$0 80@1.25
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton	$40.00@41.00

Tarred Paper.
1 ply (roll 300 sq ft), ton $35 00@37.00
2 ply, heavy, roll 100 sq. ft.....90c
2 ply, light, roll 100 sq. ft.....75c
3 ply, heavy, roll 100 sq. ft.....$1 20
3 ply, light, roll 100 sq. ft $1.00

Sand and Emery—
List April 19, 1886.. .50&10&5@60&5%

Parers—

Apple—
Advance	₩ doz. $4.50
Baldwin	₩ doz. $5.00
Bonanza	each $5.00
Dandy	each $7.50
Eureka, 1898	each $16.00
Family Bay State	₩ doz. $12.00
Hudson's Little Star	₩ doz. $4.00
Hudson's Rocking Table	₩ doz $5.50
Improved Bay State	₩ doz. $27.00@30.00
New Lightning	₩ doz. $5.50
Reading 72	₩ doz. $4.00
Reading 78	₩ doz. $7.00
Turn Table	₩ doz. $4.50
Turn Table '98	₩ doz. $5 50
White Mountain	₩ doz. $4.00

Potato—
Saratoga	₩ doz. $5.50
White Mountain	₩ doz. $4.50

Paris Green—
Arsenic, kegs or casks..lb. 12 @12½c
Kegs of 100 to 175 pounds. .....lb. 12½@13 c
Kits of 14, 28 and 56 pounds .....lb. 13½@14 c
Paper boxes 2 to 5 pnds..lb. 13½@ 14c
Paper boxes 1 pound...lb. 14 @14½c
Paper boxes ½ pound..lb. 15 @15½c
Paper boxes ¼ pound..lb 16 @16½c
Note.—These prices are sometimes shaded by jobbers.

Picks and Mattocks—
List Feb 25, 1899...60&10@60&10&10%

Pinking Irons—
See *Irons, Pinking.*

Pins—

Escutcheon—
Brass.....60@60&5%
Iron, list Nov. 11, '85.......60@60&5%

Pipe, Cast Iron Soil—
Factory Shipments.
Standard, 2-6 in......60%
Extra Heavy, 2-6 in......65%
Fittings.....60&10&10@70%

Pipe, Wrought Iron—
Factory Shipments.
List February, 1899.
Plain and Galvanized:
Carload lots.....50&10&10&5%
Less than carload lots...50&10&10%
Screw and Socket Casing.....40%
Inserted Joint Casing.....35%
Cold Drawn Seamless Steel Tubing.. 60%

Planes and Plane Irons—

Wood Planes—
Molding.....40&2½@40&5%
Bench, First quality.....45&10@45&10&5%
Bench, Second quality.....50&10@50&10&5%
Bailey's (Stanley R. & L. Co) 50&10&10@50&10&10&10%
Gage Self Setting.....35%

Iron Planes—
Bailey's (Stanley R. & L. Co).....50&10&10@50&10&10&10%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10&10@25&10&10&10%
Sargent's.....60&10&10@70%

Plane Irons—
Standard List.....30&5@30&10%
Buck Bros.....30%
Butcher's.....$5.00@5.25 to 2
Stanley R. & L. Co...50&10@50&10&10%
L. & I. J. White.....20&5@25%

Plates—
Felloe.....lb 3½@3¾c
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00.....50%

Pliers and Nippers—
	Gas....	7	8	9	10-in.
Best	.....	$5.25	$6.00	$6.50	doz.
Good	...$2.50	2.75	3.00	3.50	doz.

Acme Nippers.....50%
Bernard's:
Parallel Pliers, &c.....33⅓%
Paragon Pliers.....50%
Lodi Pliers.....50%
Elm City Fence Pliers.....33⅓%
Button's.....65@70%
Heller's Farriers' Pincers and Tools 40@40&5%
Morrill's Parallel, ₩ doz. $12.00...30&5%
P., S. & W. Cast Steel.....50@50&5%
P., S. & W. Tinners' Cutting Nippers, add 6%.....10%
Utica Drop Forge & Tool Co.:
Combination Pliers.....40&5%
Side Cutting Pliers.....40&5%
Hall Patent Nipper.....40&5%
Round and Flat Nose Pliers.....40&5%
End Cutting Pliers.....40&5%
Royal Blue.....40&5%
Glass Pliers.....40&5%
Burner Pliers.....40&5%

Plumbs and Levels—
Plumbs and Levels.....70&10c&10@75&10c&10%
Disston's.....70%
Pocket Levels.....70&10&10@75&10%
Stanley R. & L. Co.....70&10&10@70&10&10&10%
Stanley's Duplex.....25&10@25&10&10%
Woods' Extension.....33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₩ doz., No. 1, $4.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Glaziers'—
Bulk and 1 lb. papers.. lb. 10½@11¼c
½-lb. papers.....*lb. 11 @12 c*
¼-lb. papers.....*lb. 11½@12½c*

Pokes, Animal—
Ft. Madison Hawkeye.....₩ doz. $3.00
Ft. Madison, Western.....₩ doz. $3.50

Police Goods—
Manufacturers' Lists.....25@25&10%
Tower's.....25%

Polish—Metal—
Prestoline Liquid, No. 1 (½ pt.), ₩ doz. $3.00; No. 2 (1 qt.), $9.75.....40%
Prestoline Paste.....33⅓@40%
U. S. Metal Polish Paste, 3 oz. boxes, ₩ doz. 50¢; ₩ gr. $4.50; ½ lb boxes, ₩ doz. $1.25; 1 lb boxes, ₩ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₩ doz. $1.25; ₩ gr. $12.00.
Barkeepers' Friend Metal Polish, ₩ doz. $1.75; ₩ gr. $18.00.
Wynn's White Silk, ½ pt. cans, ₩ doz. $1.50

Stove—
Joseph Dixon's, ₩ gr. $5.75.....10%
Dixon's Plumbago.....₩ lb 8¢
Fireside.....₩ gr. $2.50
Gem, ₩ gr. $4.50.....10%
Japanese.....₩ gr. $3.50
Jet Black.....₩ gr. $3.50
Wynn's Black Silk, 5 lb pail.....₩ lb 12¢
Wynn's Black Silk, ½ lb box, ₩ doz. $1.00
Wynn's Black Silk, 5 oz. box, ₩ doz. $0.75
Wynn's Black Silk, 8 oz. liq., ₩ doz. $1.00

Poppers, Corn—
Round or Square :
1 qt.....*gro. $6.50@$7.00*
1½ qt.....*gro. 8 00@ 8.50*
2 qt.....*gro. 10.00@ 10.50*
Quincy Corn Popper, 1 qt., ₩ gr. $18.00; 2 qt., $24.00.

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots— Glue—
Enameled.....40c&10c&5@50%
Tinned.....40c&5@40c&10%

Powder—
In Canisters :
Duck, 1 lb. each.....15c
Fine Sporting, 1 lb. each.....75c
Rifle, ½-lb. each.....15c
Rifle, 1-lb. each.....25c
In Kegs :
Duck, 6¼-lb. kegs.....$2.25
Duck, 12½-lb. kegs.....$4.25
Duck, 25-lb kegs.....$8.00
Rifle, 6¼-lb. kegs.....$2.25
Rifle, 12½-lb. kegs.....$4.25
Rifle, 25-lb. kegs.....$8.00
King's Smokeless:
Keg (25 lb bulk).....$20.00
Half Keg (12½ lb bulk).....$10.25
Quarter Keg (6¼ lb bulk).....$5.25
Canister (1lb bulk).....$0.90
Case, 1 lb Canisters (50 lb bulk).....$45.00
Half Case, 1 lb Canisters (25 lb bulk).....$22.75
King's Semi-Smokeless:
Keg (25 lb bulk).....$16.00
Half Keg (12½ lb bulk).....$8.25
Quarter Keg (6¼ lb bulk).....$2.75
One Pound Can, bulk.....$0.50
Keg 20%
Half Keg 20%

Presses—

Fruit and Jelly—
Enterprise Mfg. Co.....20@25%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—
Crown, ₩ doz. $13.00.....50%
Crown Prince, ₩ doz. $15.00.....50%
Giant, No. 1, ₩ doz. $18; No. 2, $16.50; No. 3, $15.....40%
National, ₩ doz. $24.00.....50%
Pelican, ₩ doz. $9.00.....15&10%
Scranton No. 1 and 2, ₩ doz.....$9.00
Scranton, No. 3, ₩ doz.....$8.50

Pulleys—

Hay Fork, Swivel or Solid Eye ..... doz. $1.50

Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₩ doz. $12.00..... 40%
Hot House, Awning, &c.....60@60&10%
Japanned Clothes Line.....60@60&10%
Japanned Screw.....70&10&10%
Japanned Side.....70&10&10%
Stowell's Ceiling or End, Anti-Friction 40%
Stowell's Dumb Waiter, Anti-Friction 50%
Stowell's Electric Light..... ....33⅓&5%
Stowell's Side, Anti-Friction.....50%
Sash (Auger Mortise):
Common Sense, 1¾ in., ₩ doz., 18¢; 2 in., 20¢.
Empire.....1¾ in., 17¢; 2 in., 19¢
I. C.....1¾ in., 15¢; 2 in., 17¢
Ideal No. 18.....1¾ in., ₩ doz., 18¢
Improved.....1¾ in., 17¢; 2 in., 19¢
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.....1¾ in., 15¢; 2 in., 19¢
Star.....1¾ in., 16¢; 2 in., 19¢
Acme.....1¾ in., 18¢; 2 in., 20¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern ..... 60&5%
Pitcher Spout 75%
Pump Leathers, all sizes....gro. $6.00
Flint & Walling's Fast Mail.....50@55%
Flint & Walling's Hose Spout 75%
Myer's Pumps, low list 50%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co..... 20%

Punches—

Revolving.....doz. $3.50@3.75
Saddlers' or Drive, good..doz. 60@65c
Spring, good quality.....$1.70@1.80
Bemis & Call Co.'s Cast Steel Drive.50&5%
Bemis & Call Co.'s Check..... 55%
Bemis & Call Co.'s Spring.....50&5%
Bemis & Call Co.'s Springfield Socket..65%
Niagara Hollow Punches..... 45%
Niagara Solid Punches..... 55%
Spring, Leach's Pat..... 15%
Steel Screw, B. & K. Mfg. Co..... 50%
Tinners' Hollow, P., S. & W. Co....20&2%
Tinners' Solid, P., S. & W.Co., ₩ doz., $1.44..... 55%

Rail—

Barn Door, &c.—

Barn Door, Light..In. ½ ⅝ ¾
100 feet..... $1.50 $1.95 $2.60
B. D., for N. E. Hangers:
Small. Med. Large.
100 feet.....$1.60 2.00 2.50
Sliding Door, Bronzed Wr't Iron, ft. 6½c
Sliding Door, Iron Painted..2¼@2½c
Sliding Door, Wrought Brass, 1½ in.. ..... lb. 36c..30%
Cronk's Double Braced Steel Rail, ₩ foot..... 3½¢
Lanes' O. N. T., ₩ 100 ft., 1 inch....$3.00
Lanes' Standard, ₩ 100 ft..... .....4.25
McKinney's None Better.....₩ ft. 2½¢
McKinney's Standard..... ₩ ft. 3½¢
Moore's, Wr't. Bracket, Steel ..... 3½¢
Stowell's Steel Rail..... .....35&10%
Terry's Steel Rail .....₩ ft. 3½¢

Rakes—

1895 or old list often used:
C. S Rakes..... .....60&10&5%
Malleable Rakes ..... 70&10&5%
Association List:
Cast Steel..... .....75&5&2%
Malleable.....70&10%
Fort Madison Red Head Lawn.....$3.00
Fort Madison Blue Head Lawn.....$2.65

Rasps, Horse—

Disston's 75%
Heller Bros..... .....60&10& 0%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razor Strops—

See *Strops, Razor.*

Reels—

Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes..... 25%
Hendryx Single Action Series, 103P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Registers—

For points on Mississippi River and East:
Black Japanned.....40%
White Japanned.....30%
Bronzed Finishes.....40%
Nickel Plated.....40%
Electro Plated in Brass, &c.....40%
White Porcelain..... 30%
Solid Brass and Bronze Metal.. 25%
Note—Higher prices are quoted in territory further West.

Rings and Ringers—

Bull Rings—

Size	2	2½	3 Inch.
Copper	$0.90	1.00	1.05 dos.
	1.10	1.20	1.35 dos.

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $3.75@4.00
Hill's Ringers, G. I.....doz. 50@55c
Blair's Rings..... ₩ gro. $4.25@4.50
Blair's Ringers..... .....₩ doz. 55@60¢
Brown's Rings..... ₩ gro. $4.25@4.50
Brown's Ringers..... ₩ doz. 55@60¢
Perfect Rings..... ₩ gro. $7.25@7.75
Perfect Ringers. ₩ doz..... .....75@80¢

Rivets and Burrs—

Copper..... .....40&10@50%
Iron or Steel:
Tinners' ....60@60&10%
Miscellaneous ....60@60&10%

Rivet Sets—See *Sets.*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rollers—

Acme, Stowell's Anti-Friction ....50&10%
Barn Door, Sargent's list.60&10&10@70%
Lane's, Stay ....33⅓&5%
Stowell's Barn Door Stay....₩ doz. $1.00

Rope—

Manila, 7-16 in. and larger. lb. 9¾@10 c
Manila.....⅜-inch lb. 10¼@10½c
Manila..¼ and 5-16 in. lb. 10¾@11 c
Manila, Tarred Rope, 15 thread.....lb. 9¾@10 c
Manila Hay Rope Med'm.lb 9¾@10 c
Sisal, 7-16 in. and larger.lb. 8 @ 8¼c
Sisal..... .....⅜-inch. lb.8½@ 8¾c
Sisal.....¼ and 5-16 in. lb. 9 @ 9¼c
Sisal, Hay Rope, 2 to 10 ply.....lb. 8 @ 8¼c
Sisal, Med'm Lath Yarn.lb.7½@ 7¾c
Cotton Rope:
Best, ¼-in. and larger..lb. 13@14 c
Med'm, ¼-in. and larger lb. 10@12 c
Com., ¼-in. and larger.lb. 8@10 c
Jute Rope.....lb. .. @6 c

Wire Rope—

List July 1, '99.....30&8½%

Ropes, Hammock—

Covert Saddlery Works..... 70%

Rules—

Boxwood..75&10&10&10@75&10&10 &10&10&10%
Ivory ...40&10&10@40&10&10&10&10%
Lufkin's Steel..... 50&10%
Lufkin's Lumber ... .50&10%
Stanley R. & L. Co.;
Boxwood.....
75&10&10@75&10&10&10&10%
Ivory..... .40&10&10@40&10&10&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saw Frames—See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Note.—Extra 5@10% often given on Circulars. Cross Cuts, &c. and extra 5@7½% on Hand, Butcher, &c.

Atkins' Circular..... 50%
Atkins' Band..... 50%
Atkins' Cross Cuts..... 40%
Atkins' Mulay, Mill and Drag..... 50%
Atkins' One-Man Saw..... .....40&10%
Atkins' Wood Saws ..... 40&10%
Atkins' Hand, Compass, &c..... ....40%
Disston Circular Solid and Inserted Tooth..... 50%
Disston Band 2 to 14 in. wide..... 60%
Disston Band ¼ to 1¼..... .....70%
Disston Crosscuts..... 50%
Disston Narrow Crosscuts..... 55%
Disston Mulay, Mill and Drag..... 50%
Disston Framed Woodsaws..... .....35%
Disston Woodsaw Blades..... 40%
Disston Woodsaw Rods..... ..... 25%
Disston Handsaws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8..... 25%
Disston Hand Saws, Nos. 7, 107, 10, 3, 1, 0, 00, Combination..... 30%
Disston Compass, Keyhole, &c..... 25%
Disston Butcher Saws and Knives..35%
C. E. Jennings & Co.'s.....25&5@30&5%
Peace Circular and Mill..... 45&10%
Peace Cross Cuts, list Jan. 1, '99, 45&10&5%
Peace Hand, Panel and Rip....25&10&5%
Richardson's Circular and Mill...45&10%
Richardson's X Cuts, list Jan. 1, '93, 45&10&5%
Richardson's Hand, &c..... 35&10&5%
Simonds' Circular Saws..... .....50%
Simonds' Crescent Ground Cross Cut Saws..... .....35%
Simonds' One-Man Cross Cuts.... 40&10%
Simonds' Gang Mill, Mulay and Drag Saws..... .....45@45&5%

Hack Saws—

Disston Concave Blades..... .....25%
Disston Keystone..... .....30%
Disston Hack Saw Frames..... .....30%
Griffin's complete..... .....50@50&10%
Griffin's Hack Saw Blades....50@50&1 %
Star Hack Saws and Blades..... 15&10%

Scroll—

Barnes' No. 7, $15..... .....25%
Barnes' Scroll Saw Blades..... .....40%
Barnes' Velocipede Power Scroll Saw, without border, $18; with border $20..... .....20%
Lester, complete, $10.00..... .....15&10%
Rogers, complete $4.00..... .....15&10%

Scale Beams—See *Beams, Scale.*

Scales—

Family, Turnbull's ... ...30@30&10%
Hatch, Counter, No. 171, good quality .....doz. $17.00@18.00
Hatch, Tea, No. 161...doz. $5.75@6.00
Union Platform, Plain....$2.00@2.10
Union Platform, Striped..$2.15@2 25
Chatillon's Eureka..... .....25%
Chatillon's Favorite..... .....40%
Chatillon's Grocers' Trip Scales..... .....50%
Pelouze Scales—Family, Candy, Grocers' and Postal ....33⅓&5%
"The Standard" Portables..... .....45@50%
"The Standard" R. R. and Wagon....60%

Scrapers—

Box, 1 Handle .....doz $2.00
Box, 2 Handle ..... doz. $3.00@4.00
Ship, No. 1, doz. $3.50; No. 2, $2.25@2.40
Adjustable Box Scraper (S. R. & L. Co.) $3.00..... .....40&10%
Foot, W. E. Pratt Mfg. Co..... ₩ doz. $1.15@$1.35

Screen Window and Door Frames—See *Frames.*

Screw Drivers—See *Drivers, Screw.*

Screws—

Bench and Hand—

Bench, Iron.....doz. 1 in., $2.30; 1¼, $2.65; 1¼, $3.00
Bench, Wood, Beech..doz. $2.00@2.20
Hand, Wood.....20&10@40&10%
Hand, Grand Rapids..... 35

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 20, '95..... .....70&5@70&5& ....%
Coach and Lag, Gimlet Point, list Jan. 20, '95..... .....70@70& %
Hand Rail, list Jan. 1, '81....33⅓&2%

Jack Screws—

Millers Falls..... .....50&10&10%
Millers Falls, Roller ....50&10%
P., S. & W..... .....40@40&10%
Sargent..... .....70&10&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.....60%
Flat or Round Head, Brass.....50%

Set and Cap—

Set (Iron or Steel)..75&10@75&10&5%
Sq. Hd. Cap.....70&10@70&10&5%
Hex. Hd. Cap.....70&10@70&10&5%

Wood—

List Nov. 10, 1893. Discounts adopted June 23, '99.
Flat Head, Iron..... .....33⅓%
Round Head, Iron..... .....30%
Flat Head, Brass ....77½&10%
Round Head, Brass..... .....72½&10%
Flat Head, Bronze 72½%
Round Head, Bronze..... .....70%
Drive Screws..... .....85%
Note.—An extra 5 or 10% is often given.

Scroll Saws—See *Saws, Scroll.*

Scythes—

Grass and Grain..... .....50&10%

Scythe Snaths—See *Snaths, Scythe.*

Seeders—

Raisin—

Enterprise..... .....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls.....doz. $1.60
Wood Hdle., 14 Awls, 6 Tools.... doz. $2.25@2.40
Aiken's Sets, Awls and Tools: No. 20, ₩ doz. $10.00. 60&10@60&10&5%
Fray's Adj. Tool H'dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7..... .....50%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50..... .....40&10@40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.... ₩ doz.....$9.00

Nail—

Round, assorted.....gro. $3.25@3.75
Octagon..... .....gro. $4.25@4.75
Knurled, Good ....gro. $6.00
Buck Brothers..... .....27½%
Cannon & Diamond Point, ₩ gr. $12...35%
Snell's Corrugated, Cup Pt..... .....50%
Snell's Knurled, Cup Pt..... ....66⅔%

Rivet—

Regular list..... .....70&5@75%

Saw—

Aiken's Genuine.....₩ doz. $4.50@5.00
Aiken's Imitation ..... ₩ doz. $3.00@3.10
Atkin's Criterion..... .....₩ doz. $6.00
Atkin's Adjustable..... .....₩ doz. $6.00
Bemis & Call Co.'s Cross Cut.....30&5%
Bemis & Call Co.'s Plate..... .....20%
Bemis & Call Spring Hammer..... .30&5%
Disston's Star and Mona oh..... .....25%
Hammer, Bemis & Call Co.'s new Pat.45%
Morrill's No. 1, $15.00..... .....40&20%
Nos. 3 and 4, Cross Cut, $13.00..40&20%
No. 5, Mill, $31.00..... .....40&20%
No. 10, $15.50..... .....40&20%
No. 11, $16.00..... .....40&20%
Taintor Positive, ₩ doz. $18..... .....60%

Sharpeners, Knife—

Tanite Mills ₩ gross, $14.40....25@33⅓%

Shaves, Spoke—

Iron..... ....doz. $1 00@1 25
Wood..... .....doz. $1.75@2.00
Bailey's (Stanley R. & L. Co.).....50&10%
Goodell's, ₩ doz. $9.00..... .....15&10%
Stearns', Nos. 3 to 10..... .....40&10%

Shears—

Cast Iron...	7	8	9 in.
Best	$16.00	18.00	20.00 gro.
Good	$13 00	15.00	17 00 gro.,
Cheap	$9.00	10.00	11.00 gro.

Straight Trimmers, &c.:
Best quality, Jap.....70&5@70&10%
" Nickel..60&5@60&10%
Fair qual. Jap...30&10@30&10&10%
" Nickel.....75&5@75&10%
Tailors' Shears..... .....40@40&10%
Acme Cast Shears..... .....40@40&5%
Heinisch's Tailors' Shears..... .....40@40&5%
National Cutlery Co., Nickel ....60&10%
National Cutlery Co., En. Hdls...70&10%
Seymour's, Jap..... .....70@70&5%
Seymour's Nickel..... .....60@60&5%
Seymour's Tailors' Shears..... .....40%
Wilkinson's Hedge..... .....50%
Wilkinson's Sheep..... .....15%

Tinners' Snips—

Forged Handles, Steel Blades..20&10% Malleable Handles, Laid with Steel, 40%
Forged Handles, Steel Blades, Berlin, 40&10%
Niagara Snips..... .....40%
Seymour's..... .....40@40&5

Pruning Shears and Tools—

Disston's Combined Pruning Hook and Saw, ₩ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₩ doz. $12.00 25@25&10%
John T. Henry Mfg. Company
Pruning Shears all grades.....50&5%
Orange Shears..... .....50&30%
Grape..... .....50&10%
Tree Pruners..... .....75%
P., S. & W. Co..... .....60%
Seymour's..... .....60&10&10@70&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction..... .....50%
Patent Roller..... .....60&10@60&10&5%
Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7%
Reading..... .....70&10@75%
R. & E..... .....60&10@60&10&5%
Wrightsville, Hatfield Pattern....80&10%

Sliding Shutter—

Reading list..... .....70&10@75%
R. & E..... .....60@60&10%
Sargent's list..... .....60@60&10%

Shells—

Shells, Empty—

Brass Shot Shells, Club, Rival, Climax, 65&2%
Brass Shot Shells, first quality.....60&2%
First quality 4, 8, 10 and 12 gauge, 25&10&2%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list)..... .....20&10&2%
Ideal..... .....33⅓&10&2%
New Victor, all gauges..... .....15&2%
Quick Shot and League..... .33⅓&5&2%
Smokeless brand, 12, 10, 16 gauge.... 33⅓&10&2%
Star, Club, Rival and Climax Brands.. 33⅓&10&2%
Trap brand, 12 and 10 gauge. 33⅓&10&2%
Primrose Club, Blue Rival, Yellow Rival and New Climax.....20&5&2%

Shells, Loaded—

Loaded with Black Powder..... 40&5@40&10%
Loaded with Nitro Powder..... 40&10&10&5@40&10&10&10%
Loaded with Semi-Smokeless Powder..... .....40&5@40&10%

Ship Tools—

L. & I. J. White 35%

Shoes, Horse, Mule, &c.—

Factory Shipments:
No. 2 and larger.....per 100 lbs., $3.35

Shot—

Drop, up to B, 25-lb. bag...$1.35@1.45
Drop, up to B. 5-lb. bag ..... .30
Drop, B and larger, 25-lb. bag.... $1.60@1.70
Drop, B and larger, 5-lb bag..... .35
Buck, 25 lb. bag..... .....$1.60@1.70
Buck, 5-lb. bag..... 35
Chilled, 25 lb. bag.....$1.60@1.70
Dust Shot, 25 lb. bag 2.00
Dust Shot, 5-lb. bag..... ... .50

Shovels and Spades—

Combination prices to small trade are as follows:
No. 2, Polished, Sq. or Rd. Point, D or L Handle:

	A1, 1st Grade.	B8, 2d Grade.
Plain Back....	$9.30	$8 40
Strap Back....	8 70	7 80
Cleveland Pat'n	9.00	8.10

	C3, 3d Grade.	D4, 4th Grade.
Plain Back....	$7.50	$6.90
Strap Back.....	6.90	6.30
Cleveland Pat'n	7.20	6.60

All other sizes add 30c doz.
Black deduct 30c doz.
Note.—A further advance of 60 cents to retailers has been made by manufacturers, and is being put into effect by jobbers generally, but the price is often cut.

Shovels and Tongs—

Brass Head.....60&10@60&10&10%
Iron Head.....60&10@60&10&5%

Sieves and Sifters—

Hunter's Imitation...*gro. $9.00@9.50*
Buffalo Metallic S. S & Co., ₱ gr.:

14&16	16&18	18&20
$10.00	$12.00	$13.20

Eclipse.....₱ gr. $9.00@ 9.50
Hunter's Genuine....₱ gr. $10.00@10.50
Shaker (Barler's Pat.) Flour Sifters..
₱ doz., $2.00.....35%

Sieves, Wooden Rim—

Mesh 18, Nested, doz.....*$0.75@0.80*
Mesh 20, Nested, doz..... *.85@ .90*
Mesh 24, Nested, doz ..... *1.00@1.05*

Sinks—

Cast Iron—

Low list.....65@65&5%

NOTE.—*The low list is now generally used, but some jobbers use high list.*

Wrought Steel—

Columbus Galv'd and Enameled.....
50&10@60%
Columbus, Painted.....30&10@40%
L. & G.....50%

Skeins, Wagon—

Malleable Iron.....70&10@75&10%
Steel.....*to@45&5%*
I. I. & B. Co. Steel.....45%

Slates—

"D" Slates.....50&10@50&10&10%
Unexcelled Noiseless Slates.....
60&6 tens@60&6 tens&5%
Wire Bound.....40&10@50%
Double Slates, add $1 case, net.

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German.....50@50&5%
Covert Mfg. Co.:
Derby.....45&2%
High Grade.....45&2%
Jockey.....45&10&2%
Trojan.....45&10&2%
Covert's Saddlery Works:
Banner.....75%
Crown.....70%
Triumph.....70%
W. & E. T. Fitch Co.:
Bristol.....40&10%
Empire.....50&5%
National.....50&5%
Clipper.....50&10&5%
Champion.....40&10%
Victor.....60&5%
One dozen community:
Solid Steel.....65@65&10%
Solid Swivel.....65&1 @65&10&10%
Sargent's Patent Guarded.....
70&10@70&10&10%

Snaths—

Scythe.....55%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Flat Ware.....50&10@60&10%
Wm. Rogers Mfg. Co.....50&10%

Miscellaneous—

German Silver.....60&10%
Wm. Rogers Mfg. Co.:
18% German Silver.....60%
Rogers' Silver Metal.....50&10%

Springs—

Door—

Gem (Coil).....20%
Star (Coil).....30%
Torrey's Rod, 39 in....₱ doz. $1.10@1.25
Warner's No. 1, ₱ doz. $1.50; No. 2, $3.40.....55@55&10%
Victor (Coil).....60&10@60&10&5%

Carriage, Wagon, &c.

	Blk.	Hf. Brt.	Brt.
1½ in. and wider...			
Tested and Temp 5	5¼	5½c	lb
Oil Tested and Tempered..... 6	6¼	6½c	lb

Cliff's Bolster Springs.....40&2%
Cliff's Seat Springs.....₱ pair 48¢

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24.....35%

Squares—

Nickel plated.... } *List May 1, '95..*
Steel and Iron... } *70&10@75&10%*
Rosewood Hdl. Try Square and T-Bevels.....*60&10@10@70%*
Iron Hdl. Try Squares and T-Bevels.
40&10@40&10&10%
Disston's Try Sq. and T-Bevels....60&10%
Winterbottom's Try and Miter...50&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.00; No. 1, $6.50; No. 2, $10.00.
Wood, Porcelain Lined:
Cheap.....*doz. $2.00@2.75*
Good grade.....*doz. $3.00@3.50*
Tinned Iron.....*doz. $0.80@1.25*
Iron, Porcelain Lined doz. $3.25@3.50
Jennings' Star.....₱ doz. $1.85@1.90
King.....₱ doz. $2.00

Staples—

Barbed Blind.....*lb. 9@9½c*
Electricians', Association list.....*80%*
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting.....*lb. 5½@6c*
Grand Crossing Tack Co.'s list....75&10%

Steels, Butchers'—

Dick's.....40%
Foster Bros'.....35%
C. & A. Hoffmann's.....40%
Nichols Bros.....50%
John Wilson's, list Sept. 1, '94.....25%

Steelyards.....*40@40&10%*

Stocks and Dies—

Blacksmiths'.....*35@40%*
Gardner.....50%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25@30%
Curtis Reversible Ratchet Die Stock.25%

Stone—

Scythe Stones—

Pike Mfg. Co., list '95-'96.....33⅓%
Cleveland Stone Co., list Nov., '92..33⅓%

Oil Stones, &c.

Pike Mfg. Co.:
Hindostan No. 1, ₱ ℔...8¢
Sand Stone.....5¢
Turkey Oil Stone, Extra, 5 to 9 in.....80¢ } 33⅓@33⅓&10%
Turkey Slips.....$2.00
Lily White Washita.....60¢
Rosy Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5¼ in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.50
} 33⅓@33⅓&10%
Tanite Mills:
Emery Oil, ₱ doz. $5.00.....50@60%

Stoners—

Cherry—

Enterprise.....25@30%

Stops, Bench—

Millers Falls.....15&10%
Morrill's...₱ doz., No. 1, $10.00; No. 2, $11.00, 40&20%
Stearns'.....40%

Stops, Window—

Ives' Patent.....25&5%
Taplin's.....45%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Straps, Box—

Cary's Universal.....20&10%

Stretchers, Carpet—

Cast Iron, Steel Points....doz. 70@75c
Cast Steel, Polished.....doz. $2.25
Socket.....*doz. $1.75*

Stuffers, Sausage—

Miles' Challenge, ₱ doz. $20...50@50&5%
Enterprise Mfg. Co., list Jan. 17, '93.....
25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....30%

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks:
American Blued.....*90&20@90&25%*
American Tinned....*90&20@90&25%*
American Cut Tacks...*90@90&10&5%*
Swedes Iron Tacks.....*90&10@90&20%*
Upholsterers' Tacks..*90&35@90&40&5%*
Gimp Tacks.....*90&35@90&40&5%*
Lace Tacks.....*85&20@85&50%*
Trimmers' Tacks.....*90&10@90&20%*
Looking Glass Tacks.....*70@70&10%*
Bill Posters' and Railroad Tack....
90&25@90&35%
Hungarian Nails.....*80&5@80&10%*
Common and Patent Brads.75@75&5%
Trunk and Clout Nails:
Blued.....*80@80&10%*
Tinned.....*80@80&10%*

NOTE.—*Jobbers' prices are often lower than manufacturers'.*

Miscellaneous—

Double Point Tacks.....*90&5@...%*
Steel Wire Brads, R. & E. Mfg. Co.'s list.....*50&10@60%*

See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. $3.50
Emerald, S. S. & Co.....60-gal., $4.40
Queen City S. S. & Co., 30-gal.....$3.85
Queen City S. S. & Co., 60-gal.....$4.60

Tapes, Measuring—

American Asses' Skin.....*40&10@50%*
Patent Leather.....*25@25&10%*
Steel.....*33⅓@40%*
Chesterman's.....*25@25&5%*
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899.....35%
Lufkin's Steel.....33⅓@35%
Lufkin's Metallic.....30&5%

Thermometers—

Tin Case.....*80&10@80&10&10%*

Ties, Bale—Steel.

Standard Wire.....*50&10&5%*

Ties, Wall—

Cleveland, Steel.....₱ 1000, $10.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

L. & I. J. White.....20@20&5%

Saw—

Atkins' new list.....40%
Simonds'.....33⅓%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Newhouse.....*50&5@50&10%*
Oneida Pattern.....*.80@80&5%*
Genuine Blake, Lamb & Co.....
60&10@60&10&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes.8@9c
Mouse, Round or Square Wire.....
doz. $0.85@1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat.....₱ doz. $15.00
No. 3, Rat.....₱ doz. $5.85
No. 3½, Rat.....₱ doz. $4.50
No. 4, Mouse.....₱ doz. $4.30
No. 5, Mouse.....₱ doz. $3.00
Schuyler's Rat Killer, No. 1, ₱ gr. $13.50; No. 2, ₱ gr. $15.00
Out o' Sight, Mouse, No. 1, ₱ doz. 60¢; Rat, No. 2, $1.25; Mole, $6.00; Gopher, $1.50; Stop Thief, No. 1, $1.25; No. 2, $1.50.

Fly—

Balloon, Globe or Acme.....
doz. $1.25; gro. $14.50@15.00
Harper, Champion or Paragon....
doz. $1.50; gro. $17.00

Trimmers, Spoke—

Bonney's No. 1, ₱ doz. $3.00; No. 2, $4.00
Douglas', ₱ doz. $9.00.....30%
Stearns'.....20&10%

Trowels—

Disston Brick and Pointing.....30%
Disston Plastering.....25%
Disston "Standard Brand" and Garden Trowels.....40%
Peace's Plastering.....25@25&5%
Rose Brick and Plastering...30@30&10%
Woodrough & McParlin, Plastering.25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Daisy Stove Trucks, Improved pattern ₱ doz. $18.00

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	*5 50*	*6.00*

Galvanized S. S. & Co., with Wringer Attachment, ₱ doz., No. 10, $6.25; No. 20, $6.75; No. 30.....$7 50

Twine—

Miscellaneous—

Flax Twine—	BC	B.
No. 9, ¼ and ½-lb. Balls..	*20c*	*24c*
No. 12, ¼ and ½-lb Balls..	*17c*	*20c*
No. 18, ¼ and ½-lb. Balls..	*15c*	*17c*
No. 24, ¼ and ½-lb. Balls..	*14c*	*17c*
No 36, ¼ and ½-lb. Balls..	*13c*	*16c*

Chalk Line, Cotton, ½-lb. Balls.....
13@20c
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....*7@8c*
Cotton Wrapping, 5 Balls to lb.....
9@16c
American 3-Ply Hemp, ¼ and ½-lb. Balls.....*10@12c*
American 3-Ply Hemp, 1-lb. Balls..
10@12c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....*8c*
India 3-Ply Hemp, 1-lb. Balls.....
7@7½c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls.6½c
Mason Line, Linen, ½-lb. Balls...*15c*
No. 264 Mattress, ¼ and ½-lb. Balls 31c
Wool.....*5@5½c*

Vises—

Solid Box.....*60@60&5%*
Bonney's Saw Vises.....40&10%

Parallel—

Bonney's.....40&10%
Fisher & Norris Double Screw....15&10%
Hollands'.....40@40&10%
Massey's Perfect.....20@25%
Massey's Clincher.....40@40&10%
Merrill's.....20%
Miller's Falls.....45&10%
Parker's.....20@25%
Parker's Oval Slide.....50&10%
Parker's Victor.....30%
Prentiss.....20@25%
Sargent's.....70&10@70&10&10%
Simpson's Adjustable.....40%
Stephens'.....25@30%
Toles' Woodworking.....25%
Trenton.....40&5@40&10%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Disston's D 3 Clamp and Guide, ₱ doz. $30.....25%
Reading.....40&10%
Stearns' Common, Nos. 1 & 2.....40%
Stearns' Rubber Jaw, No. 33....50&7½%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30&7½%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise.....60&5%

Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%

Wads—Price Per M.

B. E., 11 up.....*60c*	
B. E., 9 and 10.....*70c*	
B. E., 8.....*80c*	
B. E., 7.....*80c*	Dis. 30&5%
P. E., 11 up.....*$1.00*	
P. E., 9 and 10.....*1.25*	
P. E., 8.....*1.50*	
P. E., 7.....*1.50*	
Ely's B E., 11 and larger..$1.70@1.75	
Ely's P. E., 12 to 20.....*$3.00@3.25*	

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground.....*60&10@65%*
Unground.....*60&10&10@70%*
White Enameled Ware:
Maslin Kettles..*75&10@75&10&5%*
Boilers and Saucepans...*60@60&5%*
Tinned Boilers and Saucepans.60&5%

See also *Pots, Glue.*

Note.—See Trade Report.

Enameled—

Agate Nickel Steel Ware, list July '99,40%
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95.....40&10%
Second Quality, Agate Nickel Steel..65%
Second Quality, Granite.....
70&10@70&10&10%
Iron Clad:
Peppered Ware, high list.....70%
Princess Ware, special list.....33⅓%
Mottled Ware, high list.....75&15%
Never Break Enameled.....50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch.....	*6*	*7*	*8*	*9*
Each.....	*.40c*	*45c*	*50c*	*60c*

Steel Hollow Ware.

Avery Spiders & Griddles.....70@70&5%
Avery Kettles.....60@60&10%
Lava.....50&5%
Never Break Spiders and Griddles.....
70@70&5%
Never Break Kettles.....60@60&10%
Solid Steel Spiders & Griddles. 70@70&5%
Solid Steel Kettles.....60@60&10%
Solid Steel Ware, Enameled.....50&5%

Silver Plated Hollow—

William Rogers Mfg. Co.....40&10&5%

Washboards—

Solid Zinc: ₱ doz
Crescent, family size, bent frame.$3.00
Red Star, laundry size, stationary protector.....$4.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.50
Wilson, family size, bent frame...$2.50
Single Zinc Surface:
Naiad, protector, family size, open back perforated.....$2.25
Saginaw Globe, protector, family size, ventilated back.....$2.10
Wilson, bent frame, family size, ventilated back.....$2 10

Washers—
Leather, Axle—

Solid.....80&10&10@85%
Patent.....85@85&5%
Coil: ⅜ 1 1¼ 1½ Inch.
13c 14c 15c 17c per 100

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$5.80 4.90 3.60 3.50 3.10
In lots less than one keg add ¼c per lb., 5-lb. boxes add ½c to list.
NOTE—*Jobbers' prices generally lower than manufacturers'.*

Washer Cutters—
See *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Weaners—
Tyler's New Halter—No. 1 ₱ doz. $3.45; No. 2, $3.70; No. 3, $4.00; No 4. $4.80
Tyler's Safety—Nos. 1 and 2, ₱ doz. $1.70; No. 3, $2.00; No. 4, $2.30.

Wedges—
Oil Finish.....*lb.* 2.70@2.85c
Axe Finish.....*lb.* 3.00@3.10c

Weights, Sash—
Carloads at factory.....$15.00@17.00
Less than carloads at factory.....
$16.00@18.00
Note—Some Foundries are naming higher prices.

Well Buckets, Galvanized
See *Pails, Galvanized.*

Wheels Well—
8-in., $1.75; 10-in., $2.00; 12-in., $2.50; 14-in., $3.75.

Wire and Wire Goods—
Market: Nos. 6 to 16:
Br. & Ann.....70&10@75&5%
Cop'd.....67½@70%
Galv.....67½@70%
Tin'd, Tin'd list.....75@75&5%
Stone, Br. and Ann'd.....
Nos. 19 to 26.....75&10@75&10&5%
Nos. 27 to 36.....75&10&5@80&5%
Annealed Wire on Spools.....
60&10@60&10&5%
Brass, list Feb. 26, '96.....15%
Copper, list Feb. 26, '96.....20%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to $, 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
Iron and Brass, list July 1, 1899....
80@10@80@10@10%

Wire Cloth and Netting—
Galvanized Wire Netting.....
80@80@15%
Painted Screen Cloth per 100 ft.....
$1 50@ ...

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—
Agricultural.....75@10@80%
Baxter's S.....70%
Coes' Genuine.....40&10&5&5&3%
Coes' "Mechanics'".....40&10&10&5&5&3%
Acme.....60@60&5%
Aiken's Pocket (Bright).....$2.00@3.20
Alligator.....75%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&10%
Combination Bright.....40&5%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....50%
Boardman's.....33⅓%
Bull Dog, W. & B.....70@70&10%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Hercules.....70&10@75%
Stevenson.....60&10&10%
Stillson's.....55%

Wrought Goods—
Staples, Hooks, &c., list March 17, '92.....35@35&10%

Yokes, Neck—
Covert Saddlery Works, Trimmed...70%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'.....20%

Zinc—
Sheet.....*lb* 7¼c@8c

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.
Lead, Foreign white, in Oil.... 7½@ 8¼
Lead, American White, in Oil:
Lots of 500 ₰ or over..... 5½@ 5¾
Lots less than 500 ₰..... @ 6¼
Lead, White, in oil, 25 ₰ tin pails, add to keg price..... @ ¼
Lead, White, in oil, 12½ ₰ tin pails, add to keg price..... @ 1
Lead, White, in oil, 1 to 5 ₰ assorted tins, add to keg price.. @ 1¼
Lead White, Dry in bbls..... @ 5
Lead, American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry..... ₱ ₰ 4½@ 5
Zinc, French, S. & B. Red Seal.. @ 7¼
Zinc, French, S. & B. Green Seal ..@7 7-10
Zinc, Paris, Red Seal..... @ 8½
Zinc, Paris, Green Seal..... @ 9½
Zinc, Antwerp, Red Seal..... @ 7½
Zinc, Antwerp, Green Seal..... @ 8½
Zinc, V. M. in Poppy Oil, G. Seal lots of 1 ton and over..... @11¾
lots less than 1 ton..... @12¼
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over..... @10¼
lots of less than 1 ton..... @11¼
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.

Dry Colors.
Black, Carbon.....₱ ₰ 8 @10
Black, Drop, Amer..... 2¼@ 4
Black, Drop, Eng..... 5 @10
Black, Ivory..... 9 @20
Blue, Celestial.....₱ ₰ 5½@ 8
Blue, Chinese.....31 @36
Blue, Prussian.....28 @32
Blue, Ultramarine..... 7 @35
Brown, Spanish..... 1@ 1
Brown, Vandyke, Amer..... 1¾@ 2¼
Brown, Vandyke, Foreign..... 2½@ 5%
Carmine, No. 40, in bulk.....$2.20@2.25
Carmine, No. 40, in ₰ bottles. 2.35@ ..
Carmine, No. 40, in ounce bot. 3.50@3.60
Green, Chrome, ordinary..... 5 @ 6
Green, Chrome, pure.....19 @25
Lead, Red, bbls. and ½ bbls.... .. @ 5¾
Lead, Red, kegs..... .. @ 6
Litharge, bbls. and ½ bbls..... .. @ 5¾
Litharge, kegs..... .. @ 6
Ocher, French Washed..... 1¼@ 2½
Ocher, German Washed..... 4½@ 5
Ocher, American.... ₱ ton $10.00@15.00
Orange Mineral, English.. ₱ ₰ 8½@ 9½
Orange Mineral, French.....10½@10¾
Orange Mineral, German..... 8½@ 9¼
Orange Mineral, American.... 7¾@ 8
Red, Indian, English..... 4½@ 8½
Red, Indian, American..... 3 @ 3¼
Red, Turkey..... 7¼@10
Red, Tuscan..... 7 @10
Red, Venetian, Amer., ₱ 100 ₰.60 @90
Red, Venetian, English.....$1.05@2.00
Sienna, Italian, Burnt and Powdered.....₱ ₰ 2¾@ 5
Sienna, Ital., Raw, Powd..... 2½@ 5
Sienna, American, Raw..... 1¼@ 1¾
Sienna, American, Burnt and Powdered.....₱ ₰ 1¼@ 1½
Talc, French.....₱ 100 ₰ $1.10 @1.25
Talc, American..... .50 @65
Terra Alba, French, ₱ 100 ₰.. 80 @1.00
Terra Alba, English..... .85 @1.00
Terra Alba, American No. 1....65 @75
Terra Alba, American No. 2....50 @60
Umber, Turkey, Bnt. & Pow. ₱ ₰ 2¼@ 3½
Umber, Turkey, Raw & Powd. 2¼@ 3½
Umber, Bnt. Am r..... 1¼@ 1½
Umber, Raw, Amer..... 1¼@ 1½
Yellow, Chrome..... .10 @25
Vermilion, American Lead..... .. @10
Vermilion, Quicksilver, bbls or kegs..... .. @61
Vermilion, Quicksilver, bags.... .. @62
Vermilion, Quicks'r, am'r pkgs. @67
Vermilion, English, Import.. .65 @80
Vermilion, Artificial..... .5 @20
Vermilion Chinese.... .....80 @90

Colors in Oil.
Black, Lampblack, Best,..... 13 @14
Black, Lampblack, Common... 10 @11
Blue, Chinese..... .....35 @40
Blue, Prussian.....30 @35
Blue, Ultramarine.....12 @16
Brown, Vandyke.....8 @13
Green, Chrome.....8 @14
Green, Paris.....20 @24
Sienna, Raw..... .. 8 @13
Sienna, Burnt..... 8 @13
Umber, Raw..... 8 @13
Umber, Burnt..... 8 @13

Miscellaneous.
Barytes, Foreign, ₱ ton....$20.00@21.00
Barytes, Amer. floated..... 19.00@20.00
Barytes, Crude..... 8.00@10.00
Chalk, in bulk.....₱ ton 2.00@ ..
Chalk, in bbls.....₱ 100 ₰ 35@
China Clay, English..₱ ton 11.00@17.00
Cobalt, Oxide.....₱ 100 ₰ ....@ 1.76
Whiting, Common..₱ 100 ₰ .42½@ .50
Whiting, Gilders..... .47@ .56
Whiting, extra Gilders'.... @ 55%

Putty.
In barrels and ½ bbls..... 1 4-10@ 1½
In tubs.....1½@1 6-10
In tin cans..... 1½@ 2
In bladders..... 1½@ 2

Spirits Turpentine.
In Southern bbls.... .. @49
In machine bbls .... .. @50

Glue.
Low Grade.....₱ ₰ 13 @15
Cabinet.....13 @16
Medium White.....14 @16
Extra White.....16 @25
French.....12 @25
Irish.....13 @15

Animal, Fish and Vegetable Oils.
Linseed, City, raw.....₱ gal. 39 @40
Linseed, City, boiled.....41 @43
Linseed, State and Western, raw 36@37
Linseed, raw Calcutta seed....58 @ ..
Lard, Prime City, present make 43 @45
Lard, Extra No. 1..... ....35 @37
Lard, No. 1.....30 @31
Cotton-seed, Crude.....21 @21½
Cotton-seed, Summer Yellow, prime.....26½@27
Cotton-seed Summer Yellow, off grades..... .. ..25½@26
Sperm, Crude.....50 @52
Sperm, Natural Spring.....53 @55
Sperm, Bleached Spring.....58 @60
Sperm, Natural Winter.....57 @57
Sperm, Bleached Winter.....63 @65
Whale, Crude..... .. @ ..
Whale, Natural Winter..... .. @43
Whale, Bleached Winter..... .. @45
Whale, Extra Bleached Win... .. @48
Menhaden, Crude, Sound.....23 @24
Menhaden, Light Pressed.....28 @29
Menhaden, Bleached Winter... @31
Menhaden, Extra Bleached....34 @ ..
Tallow, Western, prime.....44 @45
Cocoanut, Ceylon..... 5¾@ 6
Cocoanut, Cochin..... 7 @ 7½
Cod, Domestic..... .33 @35
Cod, Newfoundland.....38 @40
Red Elaine.....28 @30
Red Saponified.....₱ ₰ 4 @ 4¼
Bank.....₱ gal. .. @27
Straits..... .. @28
Olive, Italian, bbls..... 58 @60
Neatsfoot, prime..... .44 @45
Palm, prime, Lagos.....₱ ₰ 5½@ 5¾

Mineral Oils.
Black, 29 gravity, 25@30 cold test.....₱ gal. .. @ 7½
Black, 29 gravity, 15 cold test. @ 8½
Black, summer..... 6¾@ 7½
Cylinder, light filtered..... 13½@15%
Cylinder, dark filtered..... 11½ @16½
Paraffine, 23½@24 gravity.... 8¾@ 9
Paraffine, 25 gravity..... .. @ 8¼
Paraffine, 28 gravity..... .. @ 7½
Paraffine, red, No. 1..... .. @ 8¾
in small lots ½¢ advance.

THE IRON AGE.

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CURRENT METAL PRICES.

AUGUST 9, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₩ lb; Square, 0.8¢ ₩ lb
1 to 1⅞ in. round and square ₩ lb 2.30@2.40¢
1⅛ to 4 in. x ⅝ to 1 in.
Refined Iron:
1 to 1⅞ in. round and square ₩ lb 2.40@2.50¢
1⅛ to 4 in. x ⅝ to 1 in.
1⅛ to 4 in. x ¼ to 5-16 ₩ lb 2.60@2.70¢
Rods—⅜ and 11-16 round and sq'e. ₩ lb 2.60¢@2.70¢
Angles:
3 in. x ¼ in. and larger 2.50¢
1¾ to 2¾ in. x ¼ in and heavier 2.60¢
1 to 3 in. x 3-16 in. 2.70¢
1 to 3 in. x ⅛ in. 2.80¢
Tees:
1 in. 2.90¢
1¼ to 2¾ in. 2.70¢
3 in. and larger 2.60¢
Beams 2.75¢
Channels 2.75¢
Bands—1 to 6 x 3-16 to No. 13 ₩ lb 2.70 @ 2.80¢
"Burden's Best" Iron, base price ₩ lb 3.20¢
Burden's "H. B. & S. Iron, base price ₩ lb 3.00¢
"Ulster" ₩ lb 3.20¢
Norway Bars 3.75 @ 4.25¢
Norway Shapes 4.25 @ 4.75¢

Merchant Steel from Store—

per lb
Open Hearth and Bessemer Machinery 2.50 to 2.60¢
Toe Calk, Tire and Sleigh Shoe 3.00@3.25¢
Best Cast Steel, base price in small lots 7 ¢
Best Cast Steel Machinery, base price in small lots 5 ¢

Soft Steel Sheets—

¼ inch	3.00¢	No. 14	3.20¢
8-16 inch	3.10¢	No. 16	3.30¢
No. 8	3.10¢	No. 18	3.35¢
No. 10	3.10¢	No. 20	3.40¢
No. 12	3.15¢	No. 22	3.45¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb, 3.25	3.30¢
Nos. 17 to 21	₩ lb, 3.30	3.40¢
Nos. 22 to 24	₩ lb, 3.35	3.50¢
Nos. 25 and 26	₩ lb, 3.40	3.55¢
No. 27	₩ lb, 3.45	3.60¢
No. 28	₩ lb, 3.50	3.70¢

Russia, Planished, &c.

Genuine Russia, according to assortment ₩ lb 10½¢
Patent Planished ₩ lb A, 9½¢; B, 8½¢, net.
Patent Planished Sheet Steel ₩ lb 8½¢

Galvanized.

	B. B.	
Nos. 10 to 16	₩ lb, 12¢	67½&10% off.
Nos. 17 to 21	₩ lb, 13¢	
Nos. 22 to 24	₩ lb, 14¢	
Nos. 25 to 26	₩ lb, 15¢	
No. 27	₩ lb, 16¢	
No. 28	₩ lb, 17¢	
No. 29	₩ lb, 19¢	
No. 30	₩ lb, 21¢	

36 in. 1¢ ₩ lb higher.

Foreign Steel from Store—

Best Cast ₩ lb	14 ¢
Extra Cast ₩ lb	16½ @ 17 ¢
Swaged, Cast ₩ lb	16 ¢
Best Double Shear ₩ lb	14 ¢
Blister, 1st quality ₩ lb	12 ¢
German Steel, Best ₩ lb	10 ¢
2d quality ₩ lb	9 ¢
3d quality ₩ lb	8 ¢
Sheet Cast Steel, 1st quality ₩ lb	14 ¢
2d quality ₩ lb	13 ¢
3d quality ₩ lb	11 ¢
R. Mushet's "Special" ₩ lb	46 ¢
" " " Annealed ₩ lb	75 ¢
" " "Titanic" ₩ lb	19 ¢
Hobson's Choice XX Extra Best ₩ lb	85 ¢
Jessop Self Hardening ₩ lb	40 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson Self-Hardening ₩ lb	40 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free. Per ₩ lb

Banca, Pigs	34¢
Straits, Pigs	33¢
Straits in Bars	34¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20	$6.75@7.00
IX, 14 x 20	8.25@8.50
Melyn Grade:	
IC, 14 x 20	6.50
IX, 14 x 20	7.75
Allaway Grade:	
IC, 14 x 20	5.75
IX, 14 x 20	6.75

American Coke Plates—Bessemer—

IC, 14 x 20 108 ₩	$5.00@5.10
IX, 14 x 20	6.75@6.10
IXX, 14 x 20	7.10@7.20

American Terne Plates—

IC, 20 x 28	$9.75@10.50
IX, 20 x 28	11.75@12.50

Tin Boiler Plates, American—

IXX, 14 x 26	112 sheets	$12.70
IXX, 14 x 28	112 sheets	13.65
IXX, 14 x 31	112 sheets	15.10

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake 19½¢
Ansonia grade Casting 18½¢

Sheet and Bolt—

February 2, 1899. Prices, in cents per pound. Net.
Sheet 90 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 90 lb. sheet, 90 x 60 and heavier.	50 oz. to 64oz. 85 to 90 lb.	24 oz. to 30 oz. 82½ to 85 lb.	18½ oz. to 24 oz. 82½ to 82½ lb.	14 oz. and 15 oz. 11 to 12½ lb.	13 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7½ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7½ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
72	72		22½	22½	22½	22½	23½	24½	28½	28½	31½
96	96	72	22½	22½	22½	22½	23½	24½	28½	31½	
		96	22½	22½	22½	22½	23½	24½	28½		
72	72		22½	22½	22½	22½	23½	24½	28½	32½	
120	96	72	22½	22½	22½	22½	23½	24½	28½	31½	
	120	96	22½	22½	22½	22½	23½	24½	28½		
72		120	22½	22½	23½	23½	24½	25½			
96	72		22½	22½	23½	23½	24½	25½	29½	32½	
120	96	72	22½	22½	23½	24½	25½	26½	30½		
	120	96	22½	23½	23½	25½	26½	27½			
72		120	22½	23½	23½	25½	26½	27½			
96	72		22½	23½	24½	25½	26½	27½	30½	32½	
120	96	72	22½	23½	24½	25½	26½	27½	30½		
	120	96	22½	23½	24½	25½	26½	27½			
72		120	22½	23½	24½	25½	26½	27½			
96	72		22½	23½	24½	25½	26½	27½	31½	33½	
120	96	72	22½	23½	24½	25½	26½	27½	30½		
	120	96	22½	23½	24½	25½	26½	27½			
72		120	22½	23½	24

FOR SALE.

Turkey Boxwood Sawdust,

By The Samuel Winslow Skate Mfg. Co.,

WORCESTER, MASS.

COVERT'S

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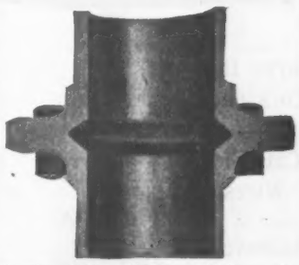

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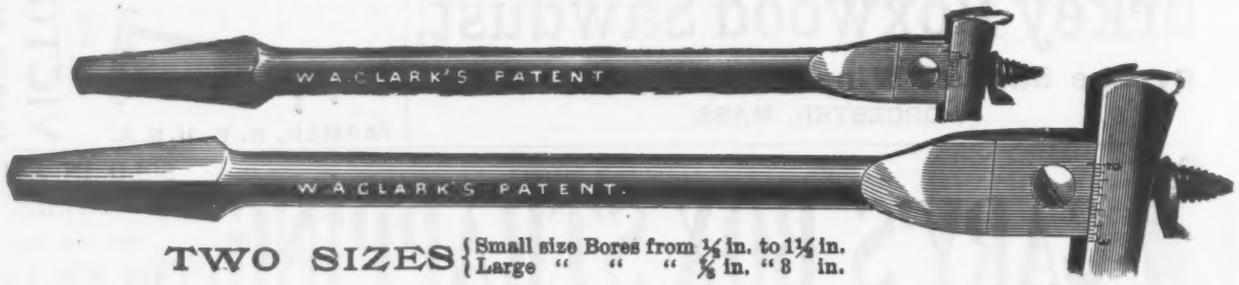

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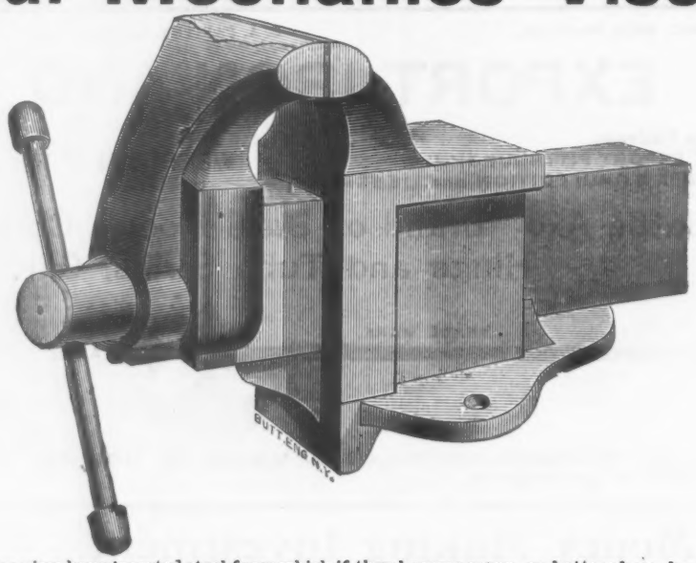

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The screw is fastened by a nut at the rear end, which is not only a substantial method but any wear can be taken up and thus save lost motion. The Vises have worked their own way into market and both the domestic and foreign demand for them is now good. There are no cheaper Vises made, the quality considered.

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2½ "	3½ "	18 "	5 50
3 "	4½ "	32 "	7 00
3½ "	4½ "	42 "	9 00
4 "	5 "	50 "	10 00
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5 "	6 "	76 "	17 00

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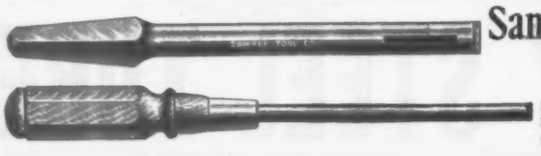

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Live dealers carry them. Don't rob yourselves by not having them in stock.
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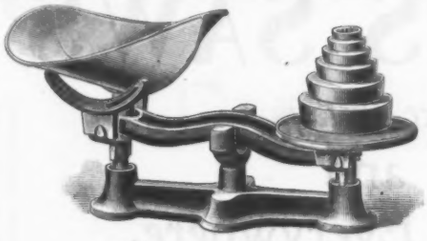

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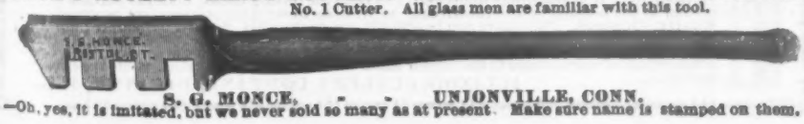

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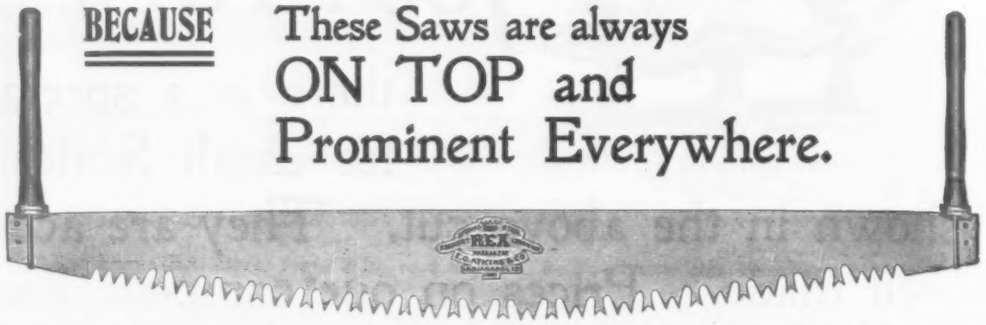

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